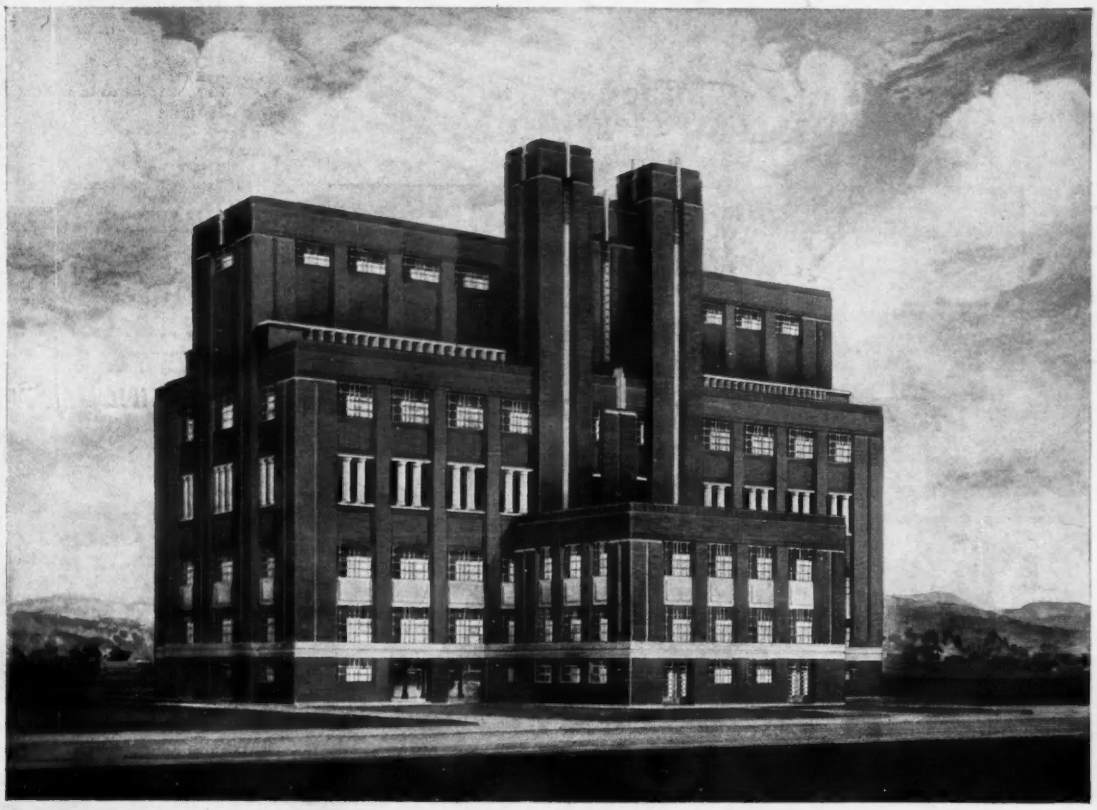
PUBLIC LIBRARY
JAN 21 19
DEPT.

Gas Journal

Vol. 253. 100th Year. LONDON, JANUARY 7, 1948. No. 4414. Price 1/-

Registered as a Newspaper.



THE NEW CARBONISING PLANT NOW BEING CONSTRUCTED AT PONTYPOOL

designed for a modern world

W-D

The WOODALL-DUCKHAM VERTICAL RETORT & OVEN CONSTRUCTION Co. (1920) Ltd.
Members of the Society of British Gas Industries
EBURY & ALLINGTON HOUSES, 136-150 VICTORIA STREET, LONDON, S.W.1
Telephone: VICtoria 7001-5 *Telegrams: Retortical (Sowest) London*

TAS/W-D. 14

NICHOLSON & WEST LTD.

for

COKE FORKS

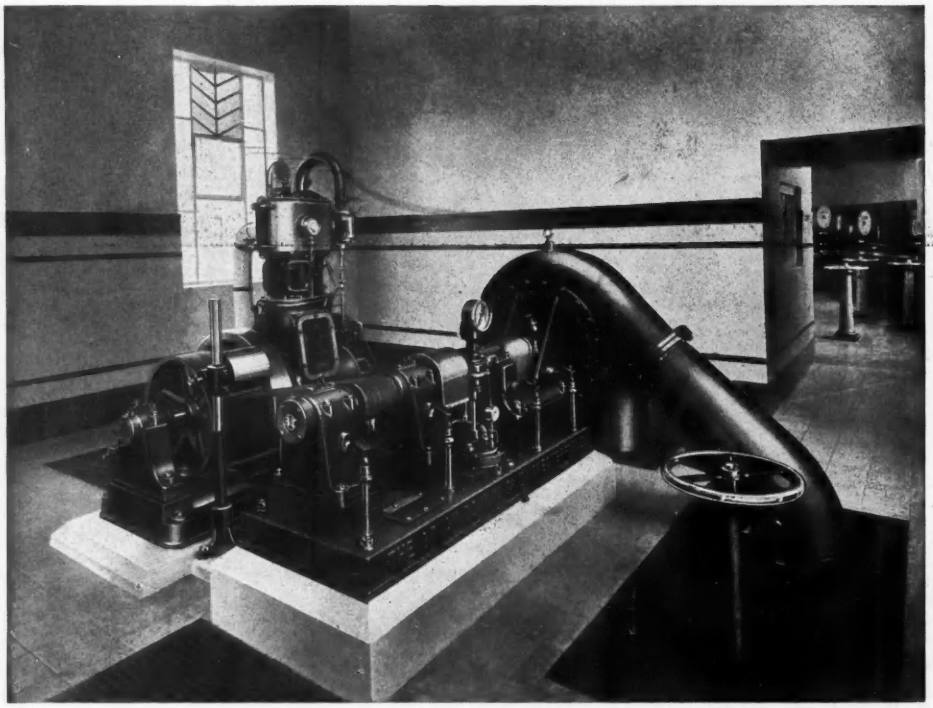
BEST QUALITY "TOOLDOM"
COKE AND COAL FORKS

REGISTERED TRADE TOOLDOM MARK REGISTERED

The Mark of Reliability for a Century

★ *ONLY ONE ITEM IN OUR RANGE OF MAINTENANCE REQUIREMENTS FOR THE GAS - - INDUSTRY*

NICHOLSON & WEST LTD. 3-15A, Gaol Lane, Halifax
Telephone 3224 -:- Telegrams: "Tools Halifax"



Rateau Turbo Gas Boosters and Exhausters

...

Fig. 907.—Rateau Turbo Booster driven by a Vertical High Speed Steam Engine through "V" Ropes.

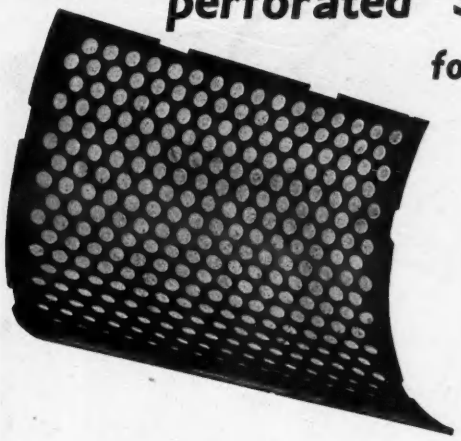
THE BRYAN DONKIN COMPANY, LTD.

Gas Works Plant Engineers, CHESTERFIELD

MEMBERS OF THE SOCIETY OF BRITISH GAS INDUSTRIES

GREENING'S "precision made"

perforated SCREEN PLATES for Accuracy & Quick-Fixing



Accuracy of Hole and Pitch, Bending and Bolt-holing assures

CLOSE GRADING · EVEN WEAR · QUICK FIXING

NG95

N. GREENING & SONS, LTD., WARRINGTON, LANCS.

Makers of precision Screening Surfaces since 1799

'Phone: Warrington 1901

GAS METERS

GEORGE GLOVERS

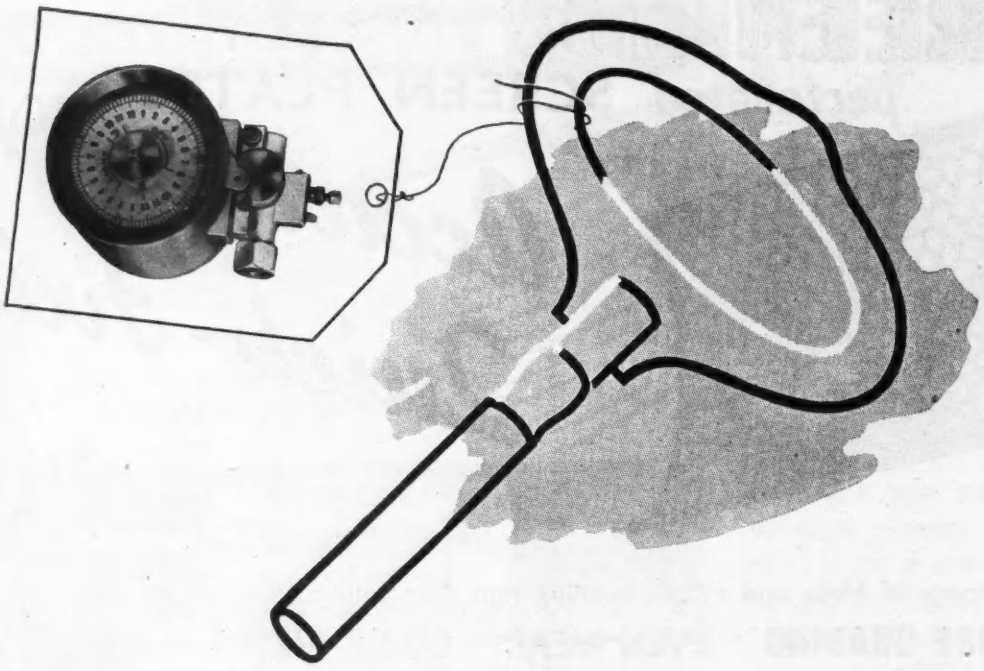
RANELAGH

DOMESTIC METERS

RANELAGH WORKS **CHELSEA** 122. KING'S ROAD S.W.3.

GEORGE GLOVER & CO. LTD.

Dependable Year in-Year out



KEY TO BETTER CONTROL

The Kingsland Controller is quickest to set. It has the clearest dial, without obstructions. It has the most accurate 15 minute setting and reading. No loosening or tightening of the parts during the process of setting. The setting of one pointer *cannot* alter the setting of the others.

The Kingsland Controller has a number of important applications in addition to street lighting. Ask for details. Immediate delivery.

THE KINGSLAND CONTROLLER

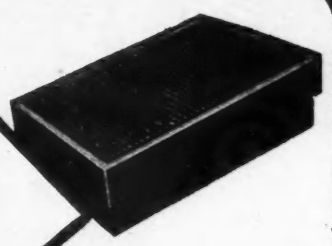
"The clock that sets with a click"

THE GAS METER CO. LTD., 238 Kingsland Road, London, E.2

CMGM 13

Infra-Red Drying by Flameless Combustion

Burns Gas without Flame



Illustrated are a few of the many shapes and sizes in which Radiant porous brick burners are made. Built from scientifically graded refractory granules, they burn efficiently in any position — are ready for use a few minutes after lighting — can be designed to suit existing plant rather than designing plant to suit standard burners.

This illustration shows a porous brick cemented into a cast iron container to which is supplied a mixture of gas and air which can be adjusted to give temperatures from 500—750°C. with a maximum gas consumption of .75 cubic feet of 500 B.T.U. gas per square inch of refractory surface. Thousands of these refractory burners are in every-day use for drying and processing work.

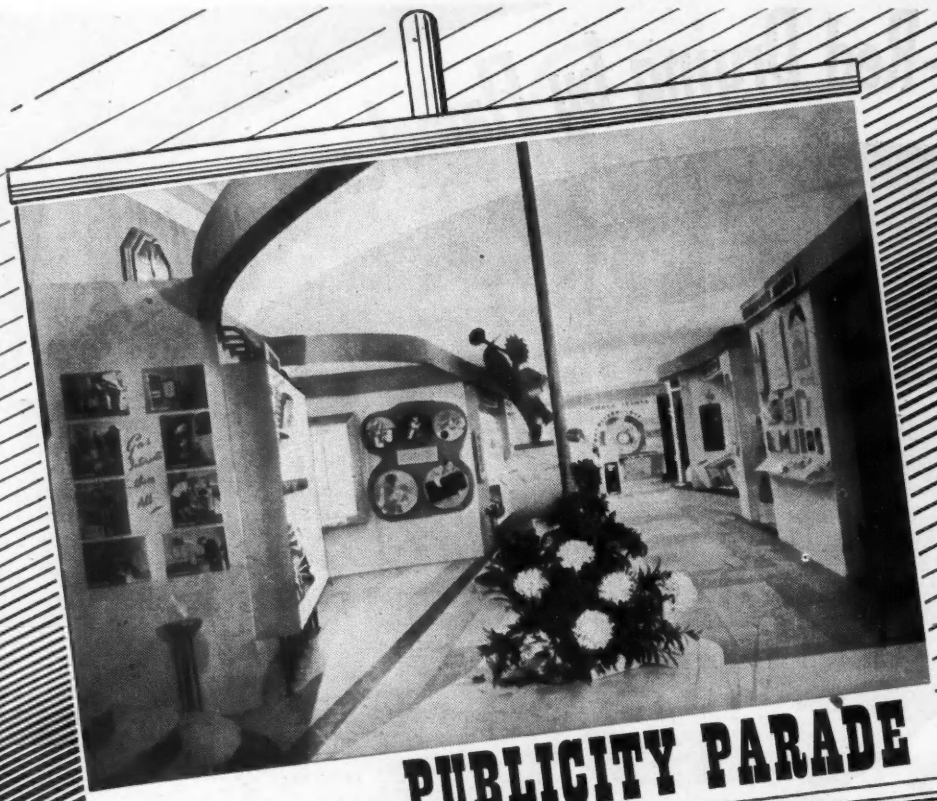
RADIANT HEATING LTD

INCORPORATING ARTHUR DOCKING & CO.

RADIANT WORKS • 9 BARNSBURY PARK • LONDON • N·1 • TELEPHONE : NORth 1677 (3 lines)

Midlands District Manager : Mr. A. J. Thompson, 101, Weymoor Road, Harborne, Birmingham. *Telephone* : Harborne 1639.

Sole Selling Agents for Scotland : Messrs. Jas. R. Thomson & Co. Ltd., 10. Blythswood Street, Glasgow, C.2. *Telephone* : Central 0639.



COME AND SEE **PUBLICITY PARADE**

IT'S GOT EVERYTHING!
ADVERTISING · DISPLAY · EDITORIAL
EDUCATION · EXHIBITIONS · FILMS
INFORMATION · LECTURES · PHOTOGRAPHS
POSTERS · PRESS · PRINT · PUBLIC
RELATIONS · PUBLICATIONS
RADIO · TELEVISION

An Exhibition depicting the Publicity Services of the British Gas Council, at Gas Industry House, 1 Grosvenor Place, London, S.W.1. Telephone Sloane 4554. Individual or organised visits are welcome.

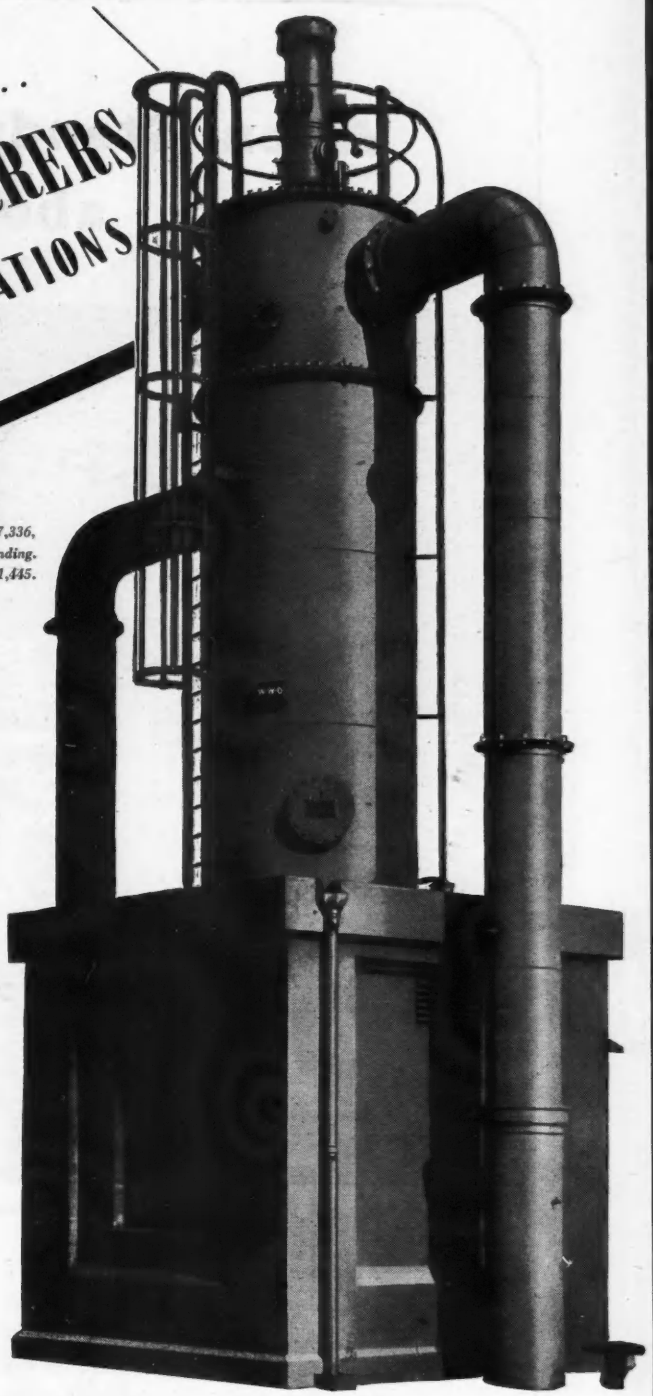
DAILY 10 a.m. to 5 p.m.
Saturdays 10 a.m. to 1 p.m.

The Standard FOR COMPARISON . . .

W.W-D. ELECTRO-DETARRERS

MORE THAN 180 INSTALLATIONS

Patent Nos. 428,471, 557,336, 565, 885 and others pending. Regd. design No. 841,445.



EVERY worth while development in electro-detarring has been pioneered by Whessoe. Features introduced by Whessoe include the employment of static selenium rectifiers, exposed H.T. rectifier equipment and H.T. Switchgear, the Castell interlocking system, single-insulator discharge electrode assembly suspension, anti-swing central discharge electrode, corrosion-fatigue resisting stainless steel discharge electrodes, and many other important developments.

Whessoe have supplied more than 225 Treaters and Rectifier sets incorporating these features.

Illustration shows W.W.-D. Electro-Detarrer for carburetted water gas supplied to the order of Messrs. Humphreys & Glasgow, Ltd., for the Cardiff Gas Light & Coke Co. The capacity of this plant is 6,000,000 cu. ft. per day.

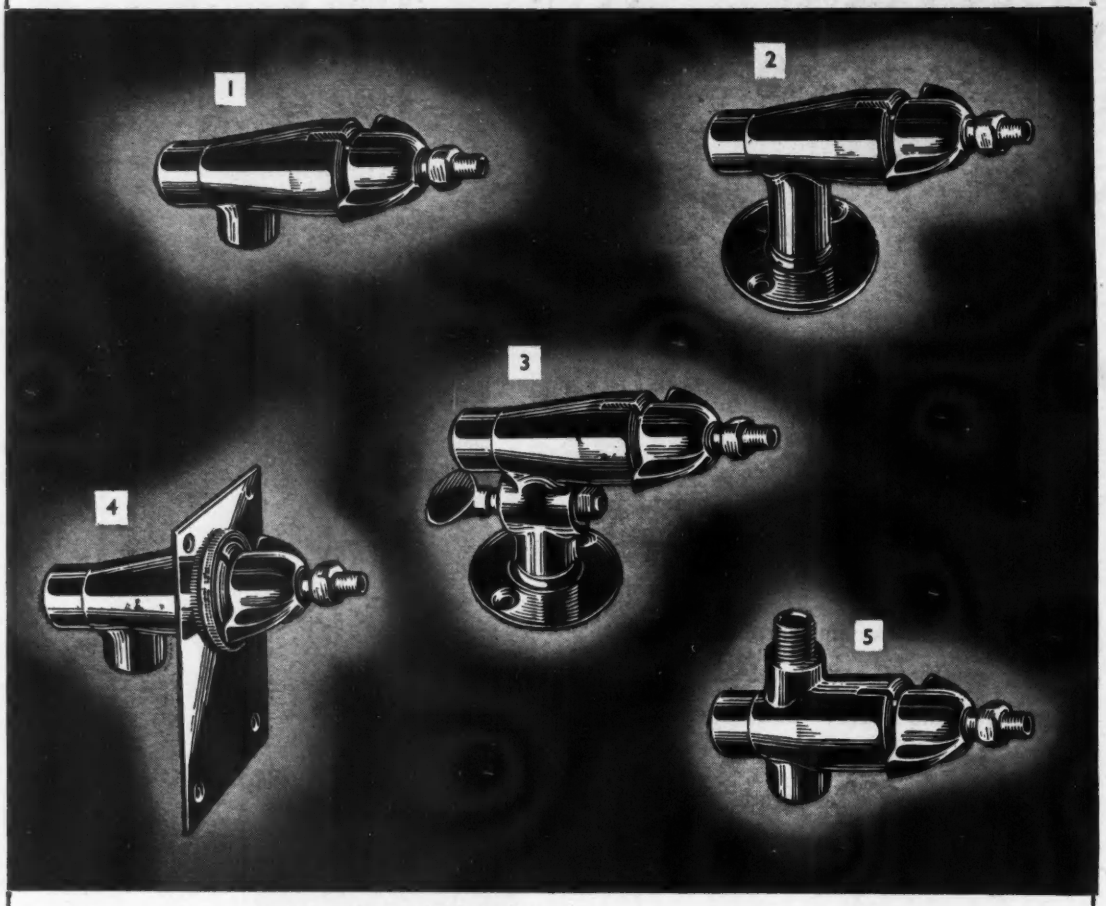
WHESSOE DARLINGTON

WHESSOE LIMITED DARLINGTON

HEAD OFFICE AND WORKS, DARLINGTON . TEL. DARLINGTON 5234

LONDON, 25 VICTORIA STREET, S.W.1 TEL. ABBEY 3881

When 'Standard' is above standard

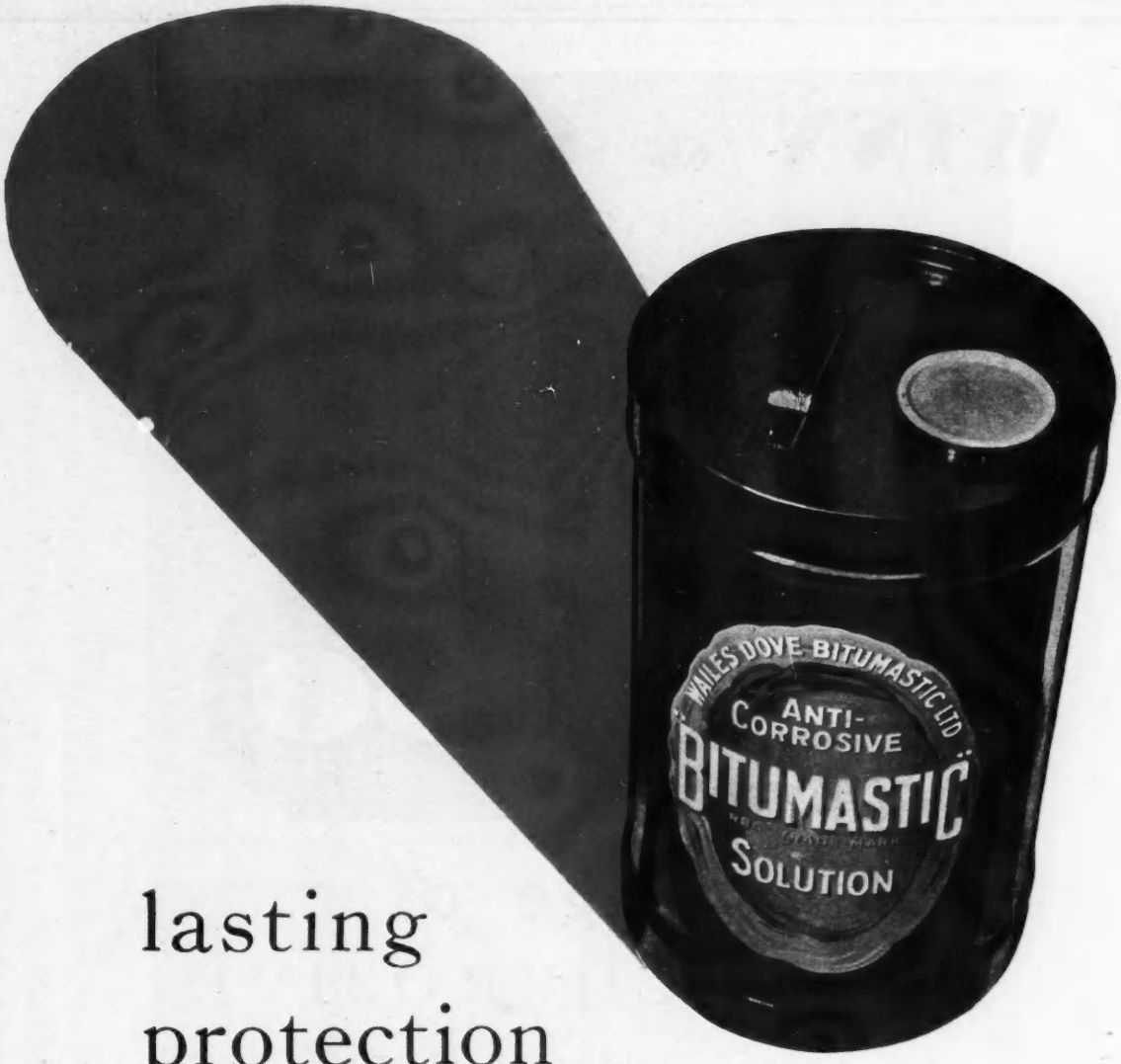


All 5 types are hot pressings with ¼" inlet B.S.P. Thread

All five plug-in gas connectors in the Sugg range conform to standards in design and finish as stipulated by the gas industry — yet a Sugg product is different. The fine quality of the material used, the little extra care in machining, close limits that are made still closer, meticulous attention to finish ; all reflect a pride of craftsmanship not usually associated with bulk produced articles. This pride is justified by the many thousands of Sugg components issued from the Westminster factories each week. Early delivery is now a possibility.

SUGG WESTMINSTER VIC. 3211

PLUG-IN GAS CONNECTORS



lasting
protection
begins with

"BITUMASTIC"

"Bitumastic" Solutions and Enamels, "Bitumastic" Super Service Black Solution, "Bituplastic," and "Bitublack" Smoke Stack Solution are only some of the protective coatings manufactured by Wailes Dove Bitumastic Ltd. Write today for descriptive literature.

WAILES DOVE BITUMASTIC LIMITED · HEBBURN · CO. DURHAM

WINN & COALES Ltd.

Manufacturers and Suppliers to the Industry of the —

Denso

range of ANTI-CORROSIVE and SEALING PRODUCTS

"DENSO" (REGD.)

PRODUCTS

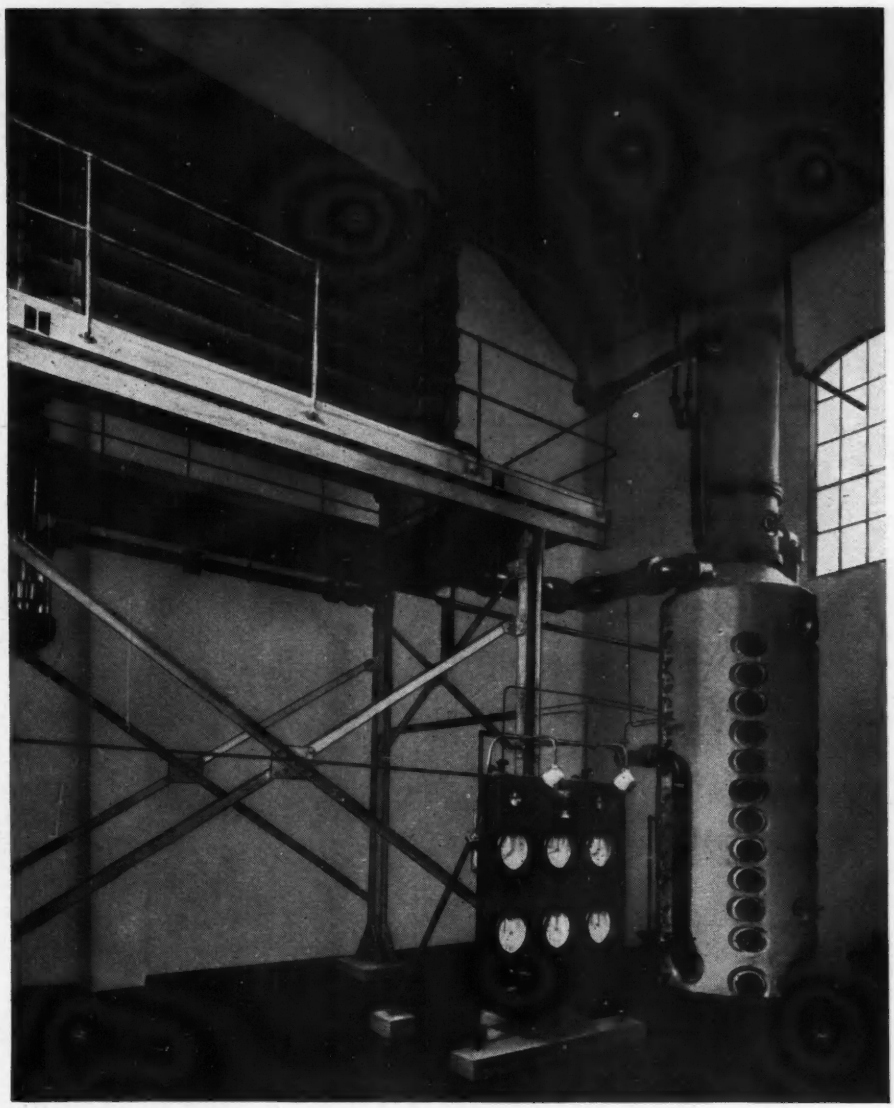
BEWARE OF IMITATIONS

WRITE FOR SPECIFICATION AND PRICE LIST

WINN & COALES LTD.

Terminal House, Grosvenor Gardens, London, S.W.1

TELEPHONE AND TELEGRAMS: SLOANE 6264.



Many years of experience are behind this Wilton Plant.

Weak ammonia liquor is converted into concentrated liquor of any desired strength up to 25%.

In doing this, all the ammonia goes into the product. Nothing is returned to the well.

Don't waste it! It has as much nitrogen as an equal weight of sulphate.

The " Cost of Manufacture " will gladly be sent on application to :

THE CHEMICAL ENGINEERING & WILTON'S PATENT FURNACE CO., LTD.

HORSHAM - - - - SUSSEX

TELEGRAMS : EVAPORATOR, HORSHAM. TELEPHONE : HORSHAM 965.

Building the Post-war World . . .

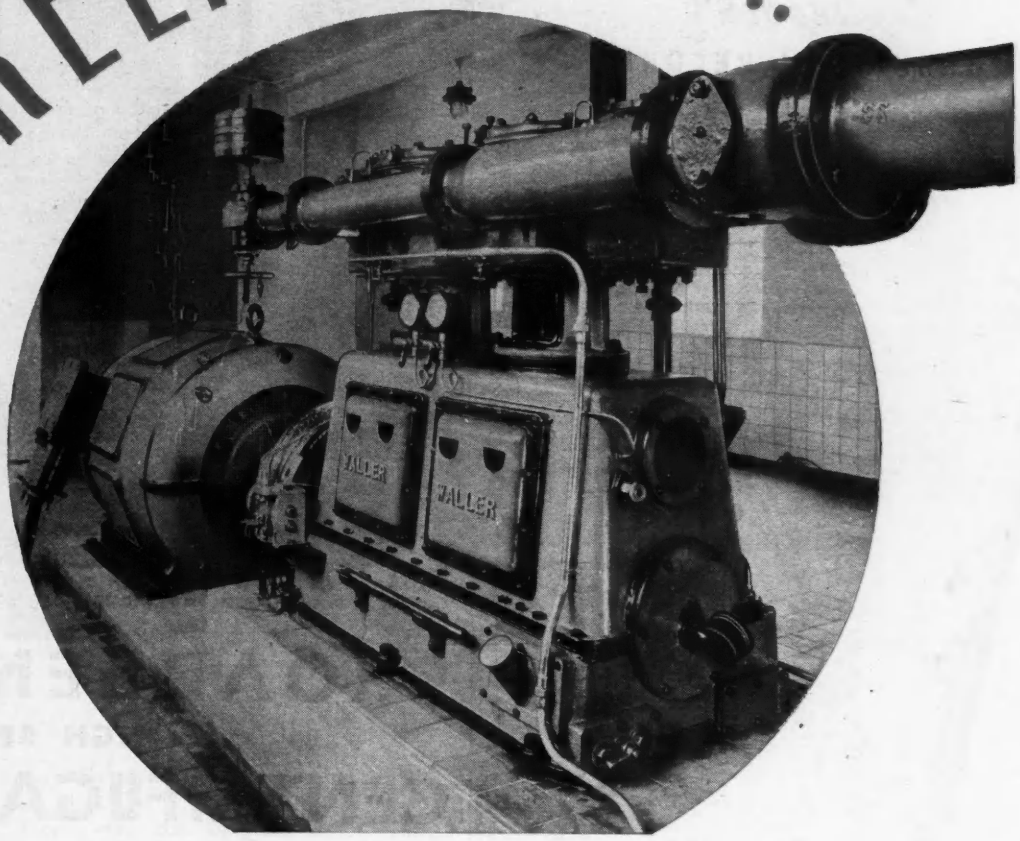
Work in progress on a penicillin factory we have recently built in the North of England.

TAYLOR WOODROW

CONTRACTS RECENTLY COMPLETED AND IN HAND • SEA DEFENCE WORKS • OIL PIPELINES
AERODROMES • UNDERGROUND STORAGE TANKS • POWER STATIONS • DEEP SEWERS (Tunnel and Open Cuts)
RAILWAY SIDINGS • OPEN CAST COAL

TAYLOR WOODROW CONSTRUCTION LTD. *Head Office and Works:* RUISLIP ROAD, SOUTHALL MIDDLESEX
'Phone: Waxlow 2366. *'Grams:* Taywood, Southall. *Code:* Bentley's Second. *London Office:* 10 PARK STREET, W.1. *'Phone:* Grosvenor 4617

RELIABILITY..



Reliability is an integral part of all equipment produced by George Waller & Son Ltd. It is built into every component—just as surely as sound design, the finest materials and first class workmanship are used.

GAS HANDLING PLANT

We have had years of experience in the design and manufacture of COMPRESSORS and BOOSTERS of all capacities, Pressure Reducing GOVERNORS, EXHAUSTERS (Waller 4-blade & Root's High Speed Type) and COKE BREAKERS—including a heavy model for furnace coke. Write for catalogues

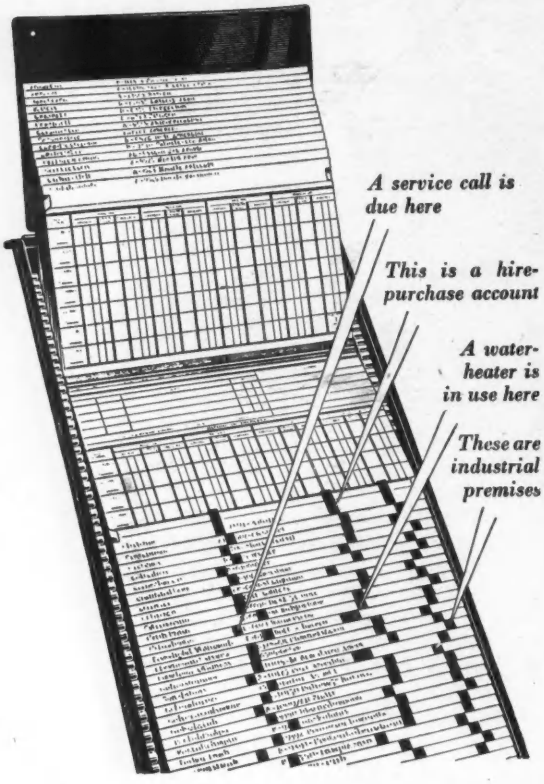
GEORGE WALLER & SON LIMITED · PHOENIX IRON WORKS
STROUD · GLOS · TEL-BRIMSCOMBE 2210

10336 **Members of the Society of British Gas Industries.**

No-it doesn't actually speak!

'RONEODEX'

CONSUMERS' RECORDS



In place of a multitude of pages in difficult-to-get-at books, Roneodex automatically sorts out the facts you want to know and signals them at a glance. No matter how complicated or diverse your recording problems are, Roneo can provide all the answers with Visible Records.

ITS A LONG QUEUE THAT HAS NO TURNING!

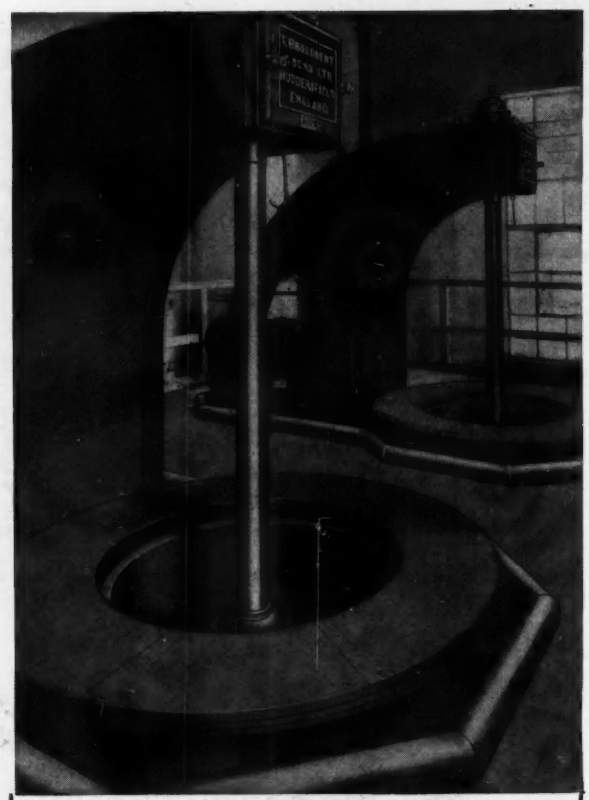
Because Roneo equipment is much in demand, both abroad and at home there is a long waiting list. Forward-looking businesses will plan ahead!

call in RONEO

and do the job properly

RONEO LTD., 17 SOUTHAMPTON ROW, LONDON, W.C.1. *Tel:* HOL. 7622
Works: Romford, Essex · Branches throughout the country

T.B.W.



SWAN-NECK TYPE CENTRIFUGALS, DRIVEN BY SEPARATE MOTOR AND FED BY SWING TROUGH FROM SATURATOR AT FLOOR LEVEL
H.64

BROADBENT

HIGH SPEED

CENTRIFUGALS

FOR

AMMONIUM SULPHATE
ANTHRACENE
NAPTHALENE

AND ALL

Crystalline Products

●

Perforated Baskets
Fabricated from :-

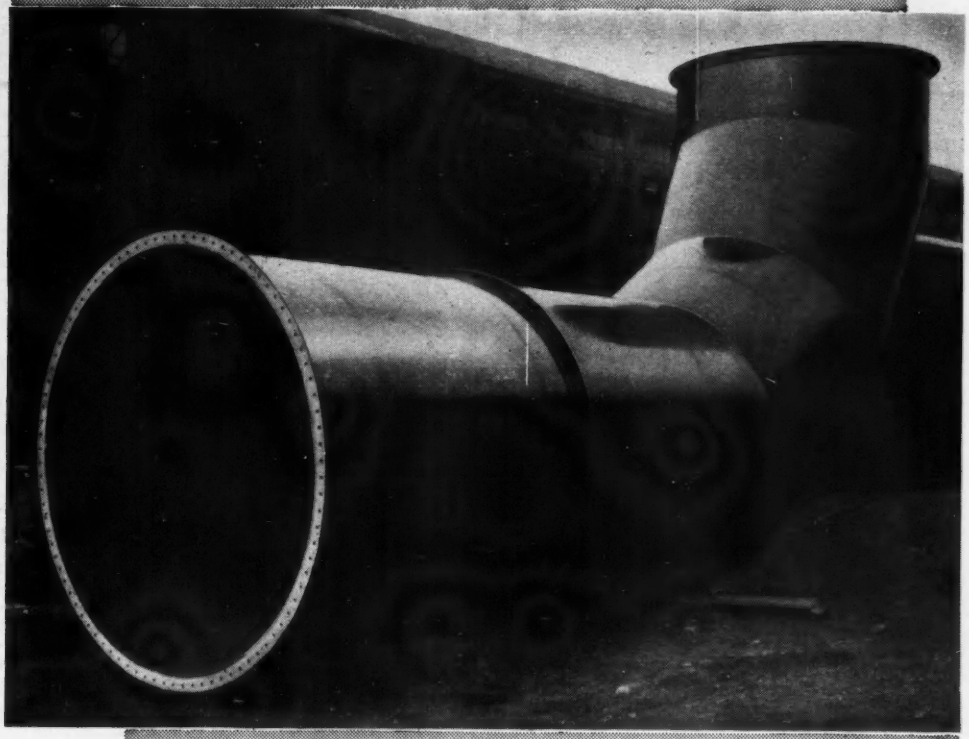
MILD STEEL
STAINLESS STEEL
MONEL & COPPER
With Bottom Discharge

●

Modern Designs in Various Types and Sizes

Telephone: 5520 (6 lines) **THOS. BROADBENT & SONS LD.** HUDDERSFIELD Telegrams: BROADBENT

HORSELEY-PIGGOTT



DUCTING

of all types and sizes

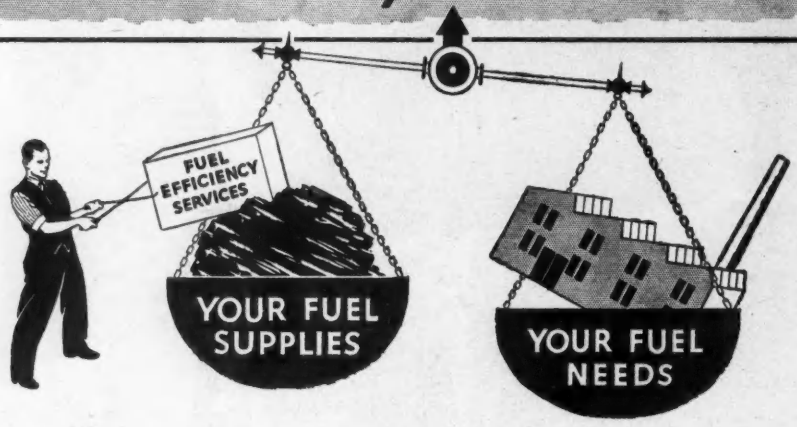
PIPES FOR GAS, WATER AND SEWAGE

OIL STORAGE TANKS • PRESSED STEEL TANKS • GASHOLDERS • CONDENSERS PURIFIERS • WATER SOFTENERS AND FILTERS

By **HORSELEY-PIGGOTT**

HORSELEY BRIDGE AND THOMAS PIGGOTT LTD.
HORSELEY WORKS, TIPTON, STAFFS. **PHONE: 1104 P.B.X.**
LONDON OFFICE: 157, VICTORIA STREET, WESTMINSTER, S.W.1

To *restore* your fuel balance



WHAT TO DO

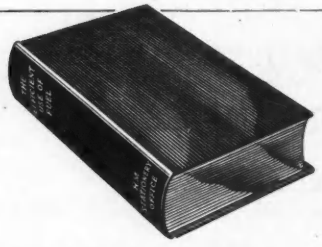
Possibly—in fact probably—there is waste in your establishment, waste that a skilled outside observer can spot in a few moments. Maybe you miss it because it has been going on for years—and familiarity has bred contempt. Maybe you miss it because you are too close to the job to see it in its right perspective.

Why not do what 911 concerns did in October—why not ask the Ministry's Fuel Engineer to come and see if he can help? His visit may be astonishingly valuable—and at the worst you have nothing to lose.

These Services are yours for the asking

An immense amount of useful information and practical help in Fuel Efficiency is now on tap through Regional Fuel Offices. Here are some of the services at your disposal :—

1. Training of boiler house personnel at your factory or in special instructional classes.
2. Evening classes, lectures and films for executives, boiler attendants and maintenance staff.
3. Personal assistance in setting up Joint Fuel Efficiency Committee for works.
4. Helpful publications including Fuel Efficiency News, special bulletins, leaflets and posters.
5. Practical help and advice from a Fuel Engineer experienced in the application of Fuel Efficiency to your particular problem.



DO YOU OWN **AND USE** THIS BOOK?

Its 807 pages contain information drawn from vast experience accumulated by specialists in industrial fuel utilization who have had direct access to thousands of industrial plants, and to the results of an immense amount o experimental work and practical achievement. With 34 chapters and 303 illustrations "The Efficient use of Fuel" is the most comprehensive of all text books on fuel utilization. Published by H.M. Stationery Office at 12/6d. net, 13/2d. post free.

YOUR REGIONAL FUEL OFFICE

REGION	ADDRESS	TELEPHONE
Northern	Government Buildings, Ponteland Road, Newcastle-on-Tyne, 5	Newcastle 28131
North-Eastern	Century House, South Parade, Leeds, 1	Leeds 30611
North-Midland	Castle Gate House, Castle Gate, Nottingham	Nottingham 46216
Eastern	Shaftesbury Road, Brooklands Avenue, Cambridge	Cambridge 56268
London	Mill House, 87/89, Shaftesbury Avenue, W.1	Gerrard 9700
South-Eastern	95, High Street, Rochester	Chatham 3487
Southern	Whiteknights, Earley, Reading	Reading 61491
Wales	27, Newport Road, Cardiff	Cardiff 9234
South-Western	12/14, Apsley Road, Clifton, Bristol, 8	Bristol 38223
Midland	Temporary Office Buildings, Hagley Road West, Birmingham, 17	Bearwood 3071
North-Western	Burton Road, West Didsbury, Manchester, 20	Didsbury 5180-4
Scotland	145, St. Vincent Street, Glasgow, C.2	Glasgow City 7636
Scotland	51, Cockburn Street, Edinburgh, 1	Edinburgh 24081
Scotland	1, Overgate, Dundee	Dundee 2179

ISSUED BY THE MINISTRY OF FUEL AND POWER

Staffordshire best charcoal tinned sheets & tinplates, heavily coated with pure tin by a special process. The ideal material for gas meters.
Richard Thomas & Baldwins Ltd.

WILDEN IRON WORKS, STOURPORT-ON-SEVERN

A NEW COOKER WITH A NEW POINT OF VIEW

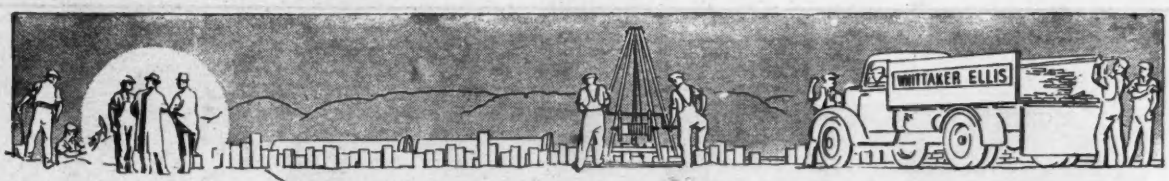
The demand for a cooker with a large oven has long been known to the gas industry and the "31" gas cooker has been specifically designed to meet that demand. Embodying an 18" oven, built on neat lines, the "31" has many practical features which bear evidence of extensive research and planning—planning which has been governed by the three most important qualities in gas cooker production—efficient working, ease of cleaning and good design. Available in two finishes—Cream and Black enamel or Grey Mottled enamel, with a choice of Folding Cover Top and Shelf as illustrated or with fixed Splashplate and single plate rack.

AI

Proprietors: Allied Ironfounders Ltd.,

GENERAL

GENERAL GAS APPLIANCES LTD. AUDENSHAW MANCHESTER



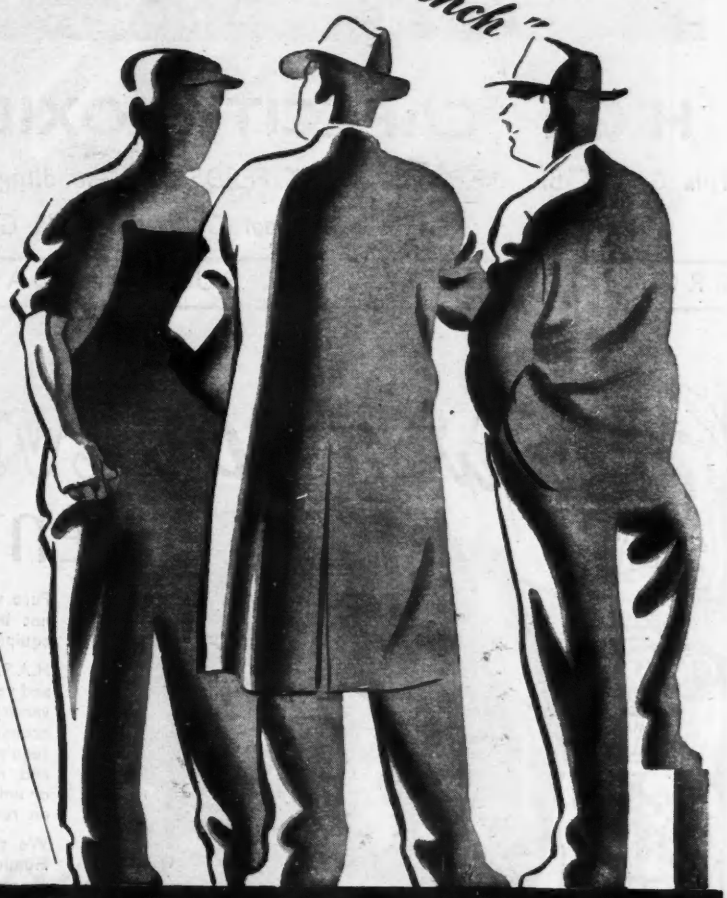
"there's more to it than just laying a pipe in a trench"

YES—Distribution introduces all sorts of problems, often calling for special equipment and a high degree of skill. It may mean making service connections under pressure, replacing old mains or laying new ones—whether 'live or dead'—and meeting obstructions such as sewers, water mains, G.P.O. cables etc.

There are never two situations quite alike. Work of this kind calls for experienced Contractors with qualified Distribution Engineers on their Staff—to plan and organise the work.

This is where Whittaker Ellis can be of assistance to you. No matter how unusual the conditions, whether for a small gas undertaking or a big scheme, we possess the organisation and the experience—with the men and the plant—to carry out the work from start to finish, with safety to the public and the minimum of inconvenience to the consumer.

So, whatever your problem, you will always find it an advantage to call in Whittaker Ellis.



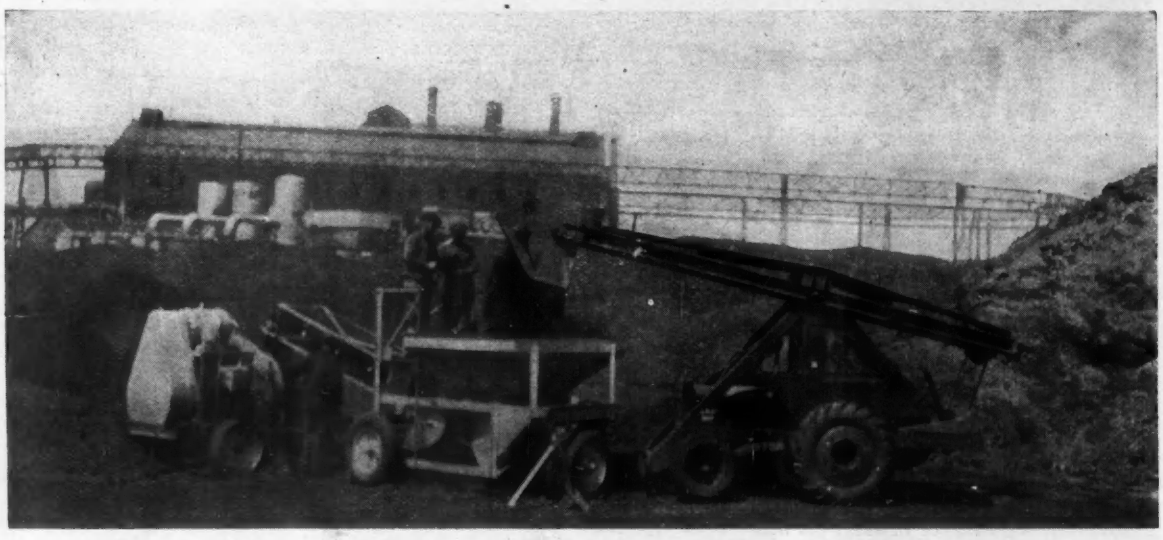
WHITTAKER ELLIS Ltd

CONTRACTORS TO THE GAS INDUSTRY

LONDON, 54, Victoria Street S.W.1. Telephone: VICtoria 4554-5 Telegrams: Whittakel, Sowest, London

BIRMINGHAM, Belmont Works, Belmont Row, 4. Telephone: Aston Cross 2241-2 Telegrams: Spigot, Birmingham

DETROIT PUBLIC LIBRARY



HIGH CAPACITY OXIDE BREAKING

This C & T BREAKER and C & T FEEDER are handling over 30 Tons of Oxide per hour at the Liverpool Gas Company's Garston Works.

CRONE & TAYLOR LTD., SUTTON OAK, ST. HELENS, LANCS.

Warm air, EVERYWHERE Ventilation too...

Pure warm air in Factories, Public Halls, Canteens, need not be expensive, if you take care to secure the right equipment.

H.A.S. Gas-Fired Air Heater Units give warmth in winter and ventilation in summer. They are in operation in a wide variety of buildings, promoting health and comfort at economical cost. Low capital outlay, no floor space required. Thermostatic control prevents waste of fuel and maintains equable temperature. Complete systems or individual units supplied. Patented design. Full details on request.

We supply Air-conditioning Plant, Temperature and also Humidity Control, Fume Extraction plant. Continuous process Metal Finishing Plant for in-the-line production, and other Industrial Process Plants.

A copy of our illustrated brochure "Air Conditioning; Heating; Industrial Process Engineering" will gladly be sent on request.

Agents for Scotland: MacFarlane MacLeod & Son
7, Elmbank Street, Glasgow, C.2.

DHB

HEAT AND AIR
SYSTEMS LIMITED

172, Buckingham Palace Road, London, S.W.1. Tel: SLOane 8245 (4 lines)
and
Dilworth House, 190, Broad Street, Birmingham, 15. Tel: MIDland 0345

CANALLOY
H.D. TUBING
FOR FITTING GAS
APPLIANCES
Progress by
cannon

LIKE THE PROPHET'S COFFIN

An Aeraspray Gun appears to be suspended between Heaven and Earth, so lightly does it weigh in the user's hand. Yet it is astonishingly robust, every wearing part can be renewed, and the nozzle, etc., are of heat treated stainless steel. Performance is, of course, unsurpassed.

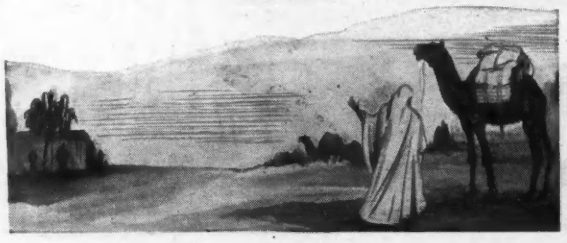
AERASPRAY

TRADE MARK

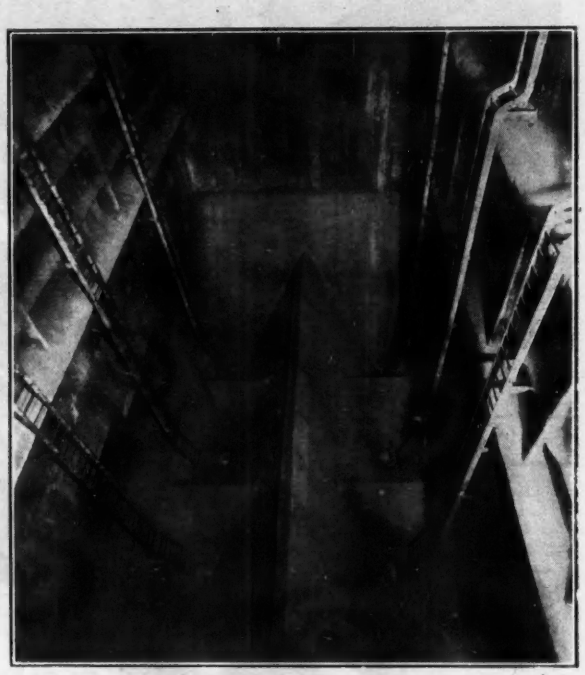
EVERYTHING FOR SPRAY FINISHING AERASPRAY MFG. CO. BIRMINGHAM

Makers of:—Spray Guns: Single and Multi-Stage Air Compressors: Fume Exhaust Systems: Hand Operated & Automatic Spray Finishing Systems.

Aeraspray Mfg. Co. Ltd., 1, Victoria Street, London, S.W.1. 179-213, Thimble Mill Lane, Birmingham, 7. Also Manchester, Belfast, Etc.



Gunite is PROTECTION against abrasion



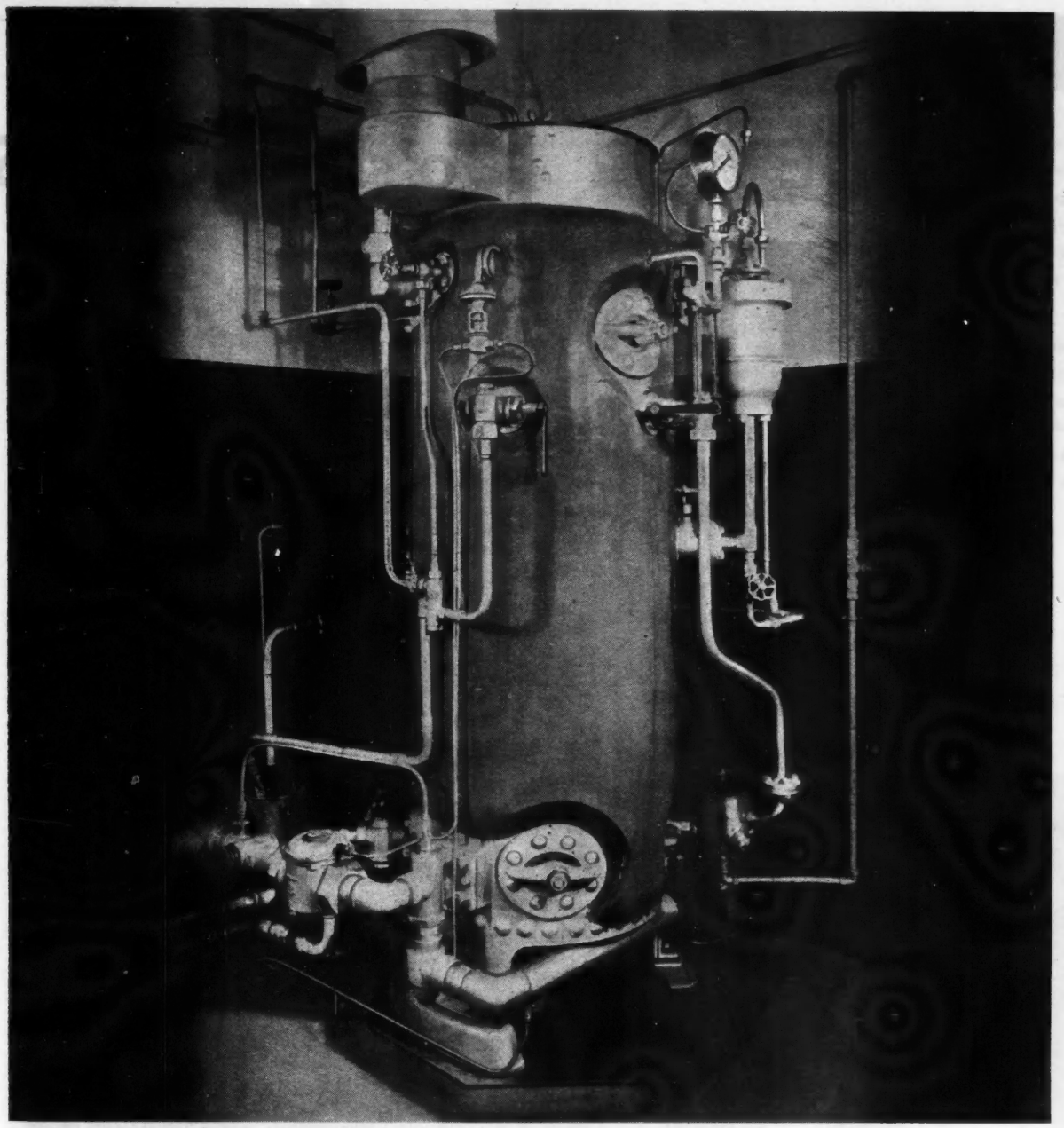
Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have particular value.

For lining coal bunkers and steel chimneys it is an ideal material, possessing great resistance to corrosion and protecting steel-work from the abrasive action of the raw coal.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained in whatever place the Gunite is applied, thus overcoming the common fault with hand-placed methods.

CONCRETE PROOFING CO. LTD.
100 · VICTORIA ST · S·W·1

'Phone: Victoria 7877 & 6275



HANDSOME IS AS HANDSOME DOES

A neat and efficient installation — a Cochran "Sinuflo" Town's Gas-Fired Boiler 1' 9" dia. × 6' 6" high × 120 lbs./sq. in. working pressure for a duty of 190 lbs. of steam per hour from feed at 60°F, supplying steam to a disinfestor and sterilising apparatus at a London Hospital. Fitted with "Thermofeed" regulator, steam pressure regulator and flame failure thermostat.

COCHRAN

COCHRAN & CO. ANNAN LTD., ANNAN, SCOTLAND AND 34, VICTORIA STREET, LONDON, S.W.1.

TAS/CH/209

A Section of

WILLEY & Co's WORKS

Any

Capacity

Required

Specializing in

INDUSTRIAL METER CONSTRUCTION

WILLEY & CO. LTD., EXETER

'PHONE : EXETER 4064-5

SOLE MANUFACTURERS

JAMES H. LAMONT
AND COMPANY LIMITED

Engineers, Brassfounders.
Gylemuir Works, Corstorphine,
Edinburgh, 12.
Telegrams: "Solderless, Edinburgh."

London Office:
Norfolk House,
Laurence Pountney Hill, E.C.4.
Telegrams:
"YUTAKA, CANNON, LONDON."

PIPE DREAM

For generations sanitary engineers all over the world dreamed of a solderless joint which would do all the things "Securex" does—a joint which could be assembled in 2 minutes, which would be tight and remain tight and which would neither rust nor fur.

If you have ever indulged in such dreams we invite you to write us and learn about the actuality—how much time and labour it saves and how much neater it looks. You'll be amazed—We were too, at first, but we've got used to it now.

SECUREX
SOLDERLESS COMPRESSION JOINTS

STEIN *Refractories*

THE illustration shows the large new Tunnel Kiln at present under construction at our Manuel Works. When in production this kiln will give a substantial increase in the output of "Nettle" (42/44% Alumina) Firebricks.

JOHN G. STEIN *& Company Limited*
BONNYBRIDGE · SCOTLAND

L·D·C

Gasworks

MOTORS

ABSOLUTE DUST-TIGHT CONSTRUCTION FOR EVERY DIRTY SITUATION

LDC ORGANIZATION

LANCASHIRE DYNAMO & CRYPTO LTD

TRAFFORD PARK, MANCHESTER, 17 — WILLESDEN, LONDON, N.W.10

Associated Companies: **Foster Transformer & Switchgear Ltd.** ● **Crypton Equipment Ltd.** ● **Crypto Ltd.**

TWO WAYS

OF CHECKING SCALE AND CORROSION

CALGON* *for large industrial installations*

MICROMET* *for small installations*

Prevention of scale and corrosion in hot water systems by 'threshold treatment' with sodium metaphosphate has been proved over a number of years • In large industrial systems, the CALGON brand of metaphosphate is added continuously at the rate of a few parts per million of water • For smaller installations in hospitals, offices, flats and even private houses, the problem of adding such minute quantities of metaphosphate has been solved by the introduction of MICROMET. This is a slowly soluble form of the chemical which by means of a simple feeder fitted to the water supply pipe, ensures a constant small addition of metaphosphate to the water. The feeder then only needs 'topping up' at infrequent intervals • Full information on 'threshold treatment' with both CALGON and MICROMET will be sent on request.

*CALGON *and* MICROMET *are the registered trade names for Albright & Wilson's sodium metaphosphate*

ALBRIGHT & WILSON LTD

Water Treatment Department

49 PARK LANE, LONDON, W.1

Tel. No. GRO. 1311

WORKS: OLDBURY AND WIDNES

TBW TW14

JAMES N.
CONNELL

When industrial machinery is hard to come by, we may be able to help you. With our large and comprehensive stock of
BOILERS, TANKS, PUMPS, COMPRESSORS, CONVEYORS and ELECTRICAL EQUIPMENT
we possibly have what you are looking for

We are expert at large dismantling jobs, and purchase redundant plant and machinery

PHOENIX AND CLIFTON IRONWORKS

COATBRIDGE

'Phone: Coatbridge 1121 (5 lines) 'Grams: "Clifiron, Coatbridge"

CHROME GRILL DEFLECTORS

PATENT NO. 520940

FOR ALL TYPES OF GAS COOKERS

● CHROME GRILL DEFLECTORS were developed through exhaustive tests in collaboration with leading steel manufacturers and specialists in expanded metals.

● They are made of heat-resisting Chrome Steel throughout, or with cast-iron backings, and to suit all types of gas cookers.

● CHROME GRILL DEFLECTORS become evenly incandescent in 40-60 seconds, reflect most intensive heat and remain free from scale, thus preventing dust from falling on food.

● The cross strand formation eliminates hot spots, warping and cracking. Laboratory tests gave 3700 heat hours on alternate heating and cooling. After six years' constant daily use, Deflectors were still in perfect condition.

THESE DEFLECTORS ARE MADE FROM FIRTH-VICKERS F.I. 20 HEAT-RESISTING CHROME STEEL.

Manufactured under licence by

H. B. DREW LIMITED

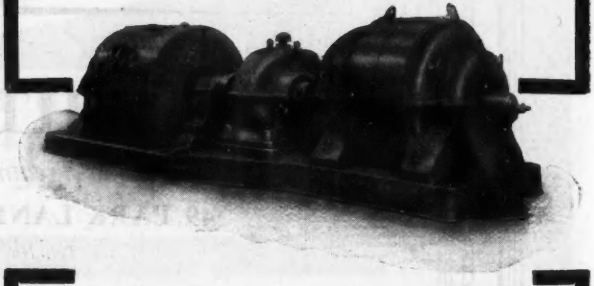
BIDEFORD AVENUE · PERIVALE · GREENFORD
MIDDLESEX · Tel.: PERivale 3238

The ACCURATE RECORDING INSTRUMENT Co
(ARIC LTD.)
ARIC WORKS · GARTH ROAD · LOWER MORDEN · SURREY
DERwent 2211-2-3

TURBO-COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.

* * *

We build a complete range of Compressors & Exhausters for air and GAS, suitable for all purposes connected with the GAS industry, including Turbo-Compressors for large capacities, as illustrated below.

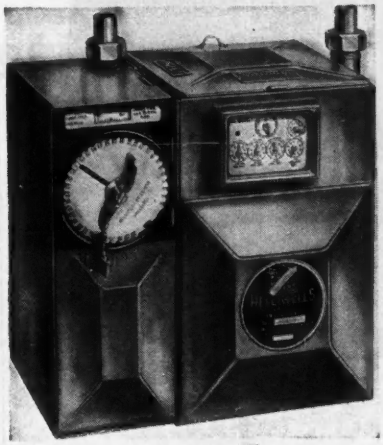


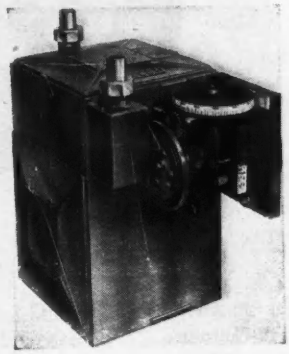
WRITE FOR PAMPHLET No. 1018 GIVING PARTICULARS—

REAVELL & Co., LTD.,
RANELAGH WORKS, IPSWICH.
Telegrams: REAVELL, IPSWICH Telephone: 2124 & 5.

METERS by Helliwells

WITH OR WITHOUT PRE-PAYMENT DEVICE





The four features of the Helliwell prepayment mechanism, shown here, warrant the careful consideration of the Gas Engineer.

1. Complicated gearing has been avoided, and the mechanism is consequently rendered absolutely trouble-free.

2. The mechanism can be supplied to operate with pennies or shillings only. Alternatively, it can be supplied as a Company's optional Bi-coin meter, in which case changing from pennies to shillings or vice versa, is a simple matter involving only a minute or so to accomplish. This can easily be carried out *in situ*.

3. A device is incorporated which, in the event of a dirty valve, etc., will "cash balance" the meter; the fact that unpaid-for gas has been passed is indicated to the consumer by the red figures on the prepayment dial. Thus the Company and the Consumer are safeguarded and the mechanism is protected from strain.

4. This device can also be utilized to provide gas for a by-pass to refrigerators, etc., after the main supply has been shut off.

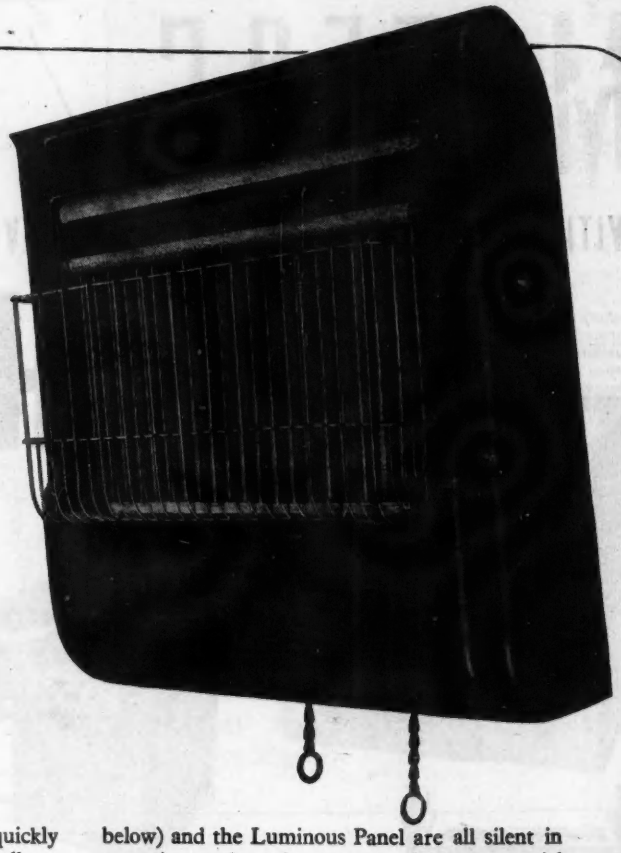
Messrs. Helliwells Ltd. will be pleased to arrange demonstrations and technical consultations with Gas Engineers on application to either the Treforest factory or the head office at the Airport, Walsall, and meters for test purposes can be supplied immediately.

Helliwells Ltd
TREFOREST TRADING ESTATE
PONTYPRIDD
GLAMORGANSHIRE

THE AIR... WALSALL STAFFORDSHIRE

HEAD OFFICE:
THE AIRPORT
WALSALL
STAFFORDSHIRE

The New Overhead LUMINOUS PANEL HEATER



Comfortable and evenly distributed heat is quickly obtained with the installation of Bratt Colbran Overhead Radiant Heaters over the whole, or only part, of a building. Suspended from the roof or wall, they save floor space and direct unobstructed heat when and where required. Installation is economical and does not interfere with the use of the building. Control may be individual or in groups, manual or by thermostat. The four types, Bowl, Wedge, Wall (illustrated below) and the Luminous Panel are all silent in operation and each possesses its own special advantages.

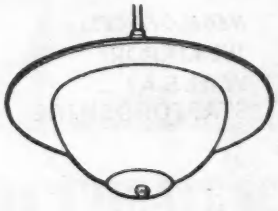
Overhead Radiant Heaters are suitable for a wide range of sites: churches, public halls, factories, workshops, schools, restaurants, shops, stores, offices, etc. ***Consult your local gas undertaking or write to us for technical advice on installation layout.***

BRATT COLBRAN LIMITED

10, MORTIMER STREET, LONDON, W.1. Phone: MUSEUM 9411-9311

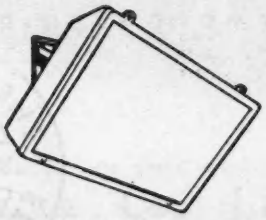
Pioneers in Overhead Radiant Heating

★ BOWL



★ WEDGE

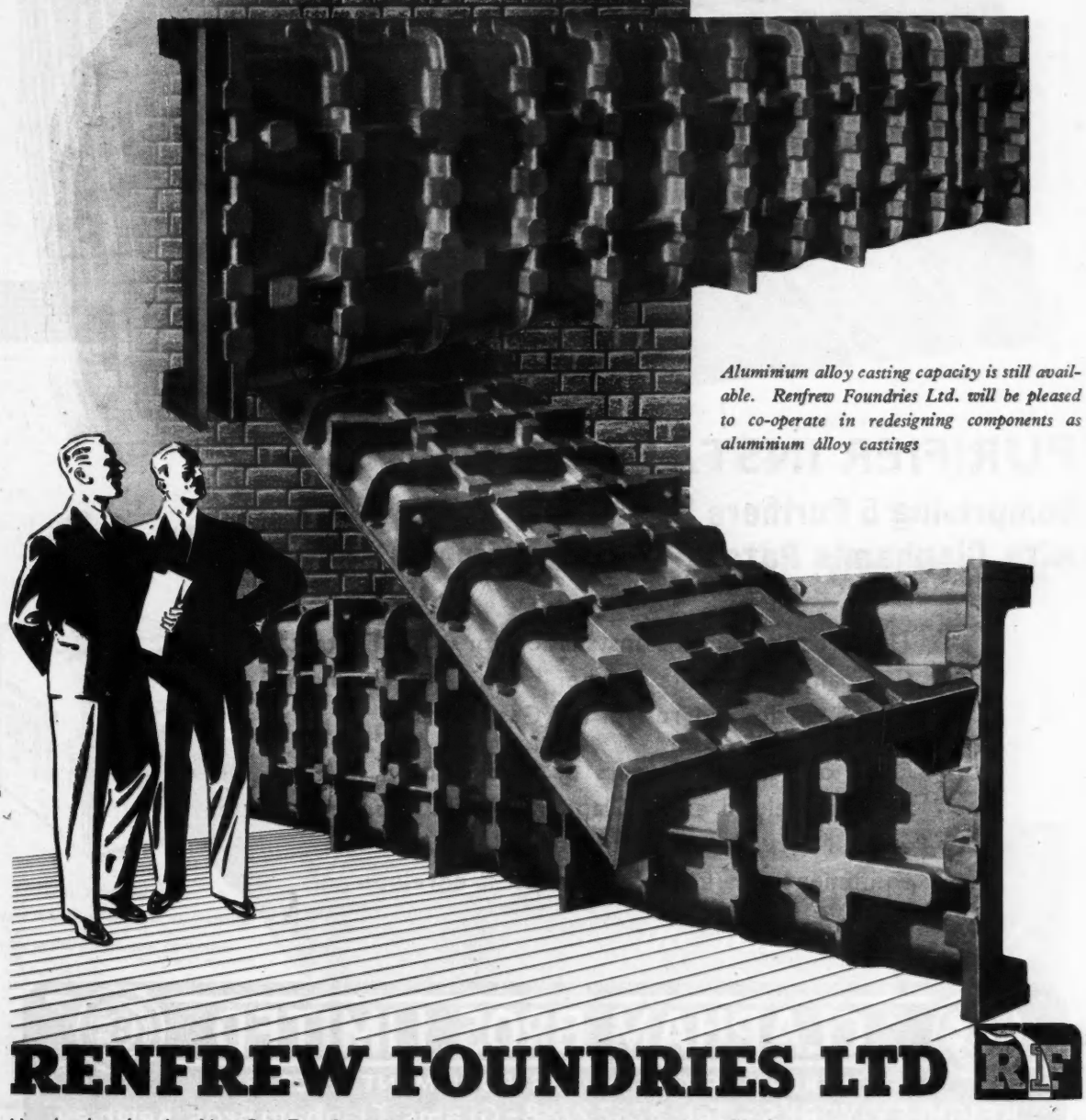
★ WALL



CREATIVE CONSTRUCTION IN LIGHT METAL CASTINGS

How up-to-date are YOU on structural castings?

This Multiple-Punch Jig Casting is 13′7½″ long, 3′ 3½″ wide, 9¼ deep and 1″ thick. In strong heat-treated aluminium alloy it weighs 1200 lb. Machine-tool manufacturers are turning to Light Metal castings because of their guaranteed soundness and high shock resistance. Light Metal castings are easily handled and may be machined at high speeds; they cut labour costs and increase production



Aluminium alloy casting capacity is still available. Renfrew Foundries Ltd. will be pleased to co-operate in redesigning components as aluminium alloy castings

RENFREW FOUNDRIES LTD RF

HILLINGTON · GLASGOW · S.W.2

2938

Another Noteworthy Contract

PURIFIER INSTALLATION

Comprising 5 Purifiers 50′ x 40′ x 6′ deep with Clapham's Patent Triumph Valves

The erection of this installation for an important Colliery Company represents another example of Clapham's contribution to the progress of the Gas Industry.

Over one hundred years of specialisation in this kind of work is behind every Clapham job, and our organization is at your service at all times to co-operate in bringing your equipment into line with the latest developments.

CLAPHAM BROS. LIMITED

MAKERS OF GAS WORKS EQUIPMENT SINCE 1837

KEIGHLEY-YORKS - Tel: 2787-2788 - Grams: "Clapham Bros., Keighley."

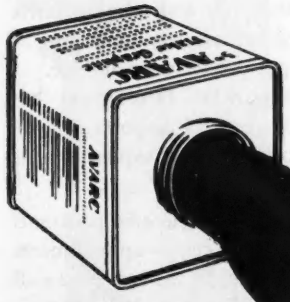
Drag Scraper & Engineering Co., Ltd.

Designers and Suppliers of SPECIAL Mechanical Handling Plant for Conveying, Storing and Reclaiming Bulk Material, Spreading Refuse, etc.

Advice and specifications gladly supplied for individual specialised requirements.

14-18 HIGH HOLBORN, LONDON, W.C.1
CHANCERY 8521

Grease in the cup *but what's in the grease?*



Even the best grease becomes a better lubricating medium when blended with graphite — nature's own lubricant. The graphite flakes form an anti-friction lining, which prevents metal to metal contact and preserves bearing surfaces. To meet varying requirements, AVARC Graphite Cup Grease is supplied in 3 grades — No. 2, soft, for high speed enclosed gears; No. 3, medium, for grease cups and high pressure grease guns — and No. 5, stiff, for places where a stiffer grease is more suitable.

The more you use **Graphite** *the better the job!*

ALSO in constant use

AVARC PURE FLAKE LUBRICATING GRAPHITE
3 grades — Coarse, Fine, Very Fine.
AVARC GRAPHITE PIPE-JOINT COMPOUND
For Steam, Gas, Air or Water screwed and flanged joints.
AVARC GRAPHITE BOND
For Oil and Petrol pipe joints.
AVARC BOILER GRAPHITE
Makes descaling easy.
AVARC SILICA-GRAPHITE PAINT
The Cheapest Paint per year of Service, etc.

Send for Complete Price List

C. R. AVERILL Ltd
SPECIALISTS IN GRAPHITE

22 DUCHY STREET, STAMFORD STREET, LONDON, S.E.1. *Telephone: WATerloo 4732/3. Telegrams: "Crucigraph, Sedist, London."*
AG5B

"I was a bit uneasy at the prospect—just at first..."

"I CONFESS I was in two minds about putting a disabled chap into a top job. It seemed to me his handicap might make for awkwardness, however suitable he might be otherwise.

" But I was impressed by his experience and by the hint from our Regional Appointments Office that ' a man's a man for a' that ' — and often more so! I liked him at once when I saw him. In fact, he seemed the best of a good bunch, and we took him on — one more for our quota. Yes, lost an arm in Burma. But handicap? About as much handicapped as Nelson! Right on top of his work, and such a good chap, too. He once explained — you have to decide whether to go under or make good. *He'd* decided all right. The Appointments Office told me that nearly all the disabled men they place are successful in their jobs.

" Yes, the Appointments Office have helped us find several of our present staff. We tell them just what we need, they look up their Register, and generally in two or three days give us details of a few picked men to choose from. You see, they've carefully interviewed *all* the applicants, so we only have to consider ' probables.' The time it saves! And all the Regional Appointments Offices are linked by teleprinter, so wherever the right man for your job is registered, they'll find him. . . ."

Hundreds of employers have commended the prompt and efficient service given by the fourteen Regional Appointments Offices. They are today's logical starting-point in the recruitment of high-grade staff, whether the need is for men and women already experienced and who are sometimes holding responsible posts, or for promising younger candidates to train.

Your nearest Appointments Office " matches men with jobs " in the executive, managerial and administrative field. If you do not know the address, any local office of the Ministry of Labour will put you in touch at once.

Since VE-day, the Appointments Department has successfully filled over 60,000 responsible posts. If you have a staffing problem, your Regional Appointments Office is ready to help.

For highly qualified technical and scientific personnel — engineers, scientists, architects, etc. — appointments are dealt with centrally, in London, by the specialist staff of the Technical and Scientific Register, York House, Kingsway, W.C.2. Temple Bar 8020.

14 linked Appointments Offices cover the Nation's potential executive manpower

Issued by the Ministry of Labour and National Service, Appointments Department, 1-6 Tavistock Square, London, W.C.1

The Silent Service

Fabroil Silent Pinions

WITH OR WITHOUT METAL SHROUDS

FOR LIGHT OR HEAVY DUTIES

Strong, silent, shock-absorbing; weather-resisting; unaffected by oil, water, steam, acid fumes, heat or cold; absolutely vermin proof; prolong indefinitely the life of the metal gears with which they mesh.

For all Industrial Machine Drives—if gears are employed—
FIT FABROIL PINIONS

BTH RUGBY

THE BRITISH THOMSON-HOUSTON COMPANY LIMITED, RUGBY, ENGLAND. A3580

AEI

BROCKHOUSE

GAS-FIRED

STEAM BOILERS

TYPE V.S.

The BROCKHOUSE GAS-FIRED STEAM BOILER represents the most modern equipment for steam-raising for heating and industrial purposes. Designed to give long life, the boiler is of all-steel construction with riveted side and end plates. Suitable for working pressures up to 100 lb. per square inch gauge, it is available in a standard range of sizes from 30 lb. to 300 lb. steam per hour.

Adaptable for Industrial Steam processes for Dairies, Dry Cleaning, Bottle Washing, Bakers' Ovens, Kitchens, etc.

The BROCKHOUSE AUTOMATIC CONDENSATE RETURN SYSTEM can be supplied complete with drawing, wiring diagram and fixing details, ready for connection to steam condensate mains to give fully automatic control combined with economy and efficiency.

Full details and schemes on request from our Technical Advisory Service Department.

BROCKHOUSE HEATER CO., LTD.,

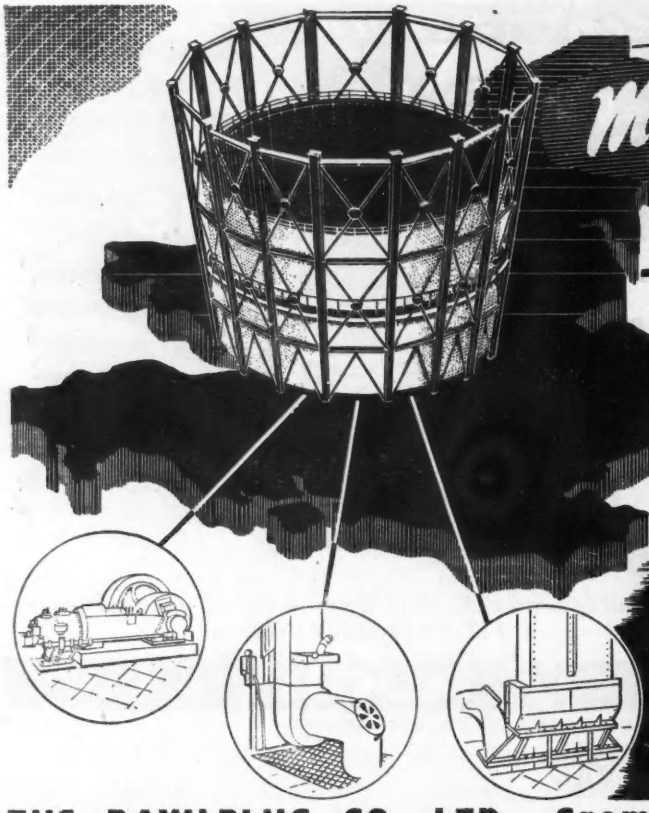
Makers of the "SELFSTOKE" Automatic Gravity Feed Boiler

VICTORIA WORKS, HILL TOP, WEST BROMWICH.
Telephone: WEDnesbury 0243.

London Office: MORLEY HALL, 25-26, ST. GEORGE ST., HANOVER SQUARE, W.1. Telephone: MAYfair 8783/8788.

Holden

C



More GAS is wanted for industry

Industry needs more gas — and that means more machinery to make gas, which in turn means many urgent fixing jobs. The quickest way of fixing heavy machinery permanently is with Rawlbolts. There are two types, the Loose-Bolt type which enable the bolts to be inserted after the machinery is in place and the Bolt Projecting type, which is inserted as one unit. Rawlbolts cut out the mess and trouble of grouting, avoiding time-lag caused by waiting for cement to dry. Rawlbolts can be supplied with adaptors for use with pipe-hangers and other gas fittings. Technical details of the full range of Rawlplug Fixing Tools and Boring Tools gladly supplied on request.

B347

RAWLPLUG FIXING DEVICES speed the installation of plant and equipment

THE RAWLPLUG CO. LTD., Cromwell Road, London, S.W.7.

FOR UNDERGROUND SERVICE

Contours, subsoils rise and fall, aspect, syphoning—these are some of the problems to be settled before ever the new community can be built.

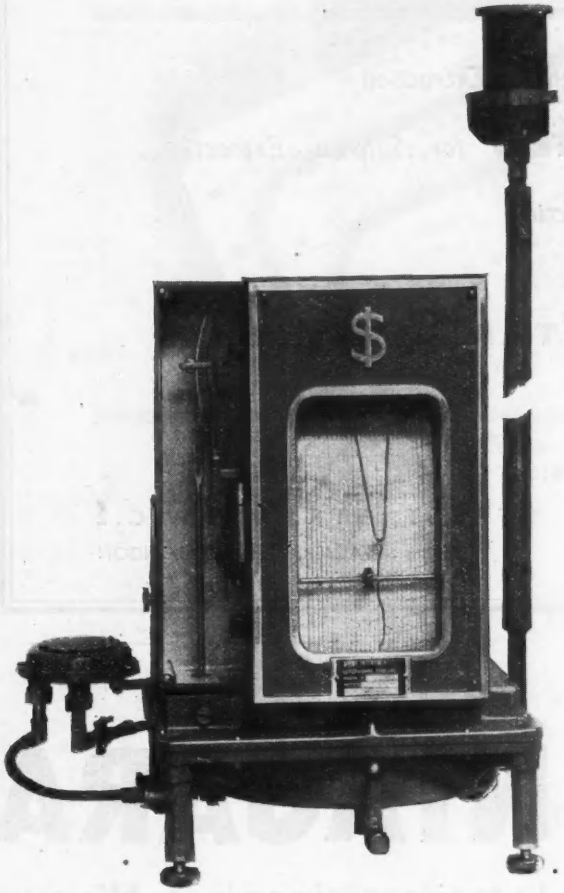
Water and Gas main layouts may present problems too but luckily the pipes themselves and the necessary "specials" present no problems—Civic engineers know they are always safe in specifying "Staveley."

STAVELEY

SAND & METAL SPUN CAST IRON PIPES • FLEXIBLE JOINTS & SPECIALS

THE STAVELEY COAL & IRON CO. LTD., CHESTERFIELD

SIGMA RECORDER No. 7 FOR SPECIFIC GRAVITY



ARE YOUR WORKS UPHOLDING THE REPUTATION OF THE GAS INDUSTRY?

IT IS RECOGNISED BY ALL COMPETENT AUTHORITIES THAT IN ADDITION TO ACCURATE CONTROL OF CALORIFIC VALUE A CLOSE CHECK SHOULD BE KEPT ON SPECIFIC GRAVITY. YOU ARE NO DOUBT USING SIGMA CALORIMETERS!

ARE YOU USING SIGMA SPECIFIC GRAVITY RECORDERS TO ENSURE SENDING THE DISTRICT THE GAS YOU KNOW YOUR CUSTOMER REQUIRES?

ALSO IN THE SIGMA RANGE

No. 1, 3 & 6	RECORDING CALORIMETER
„ 5	PRESSURE RECORDER
„ 8	DRAUGHT RECORDER
„ 9	INDICATING CALORIMETER
„ 12	PERCENTAGE COMBUSTIBLES INDICATOR
„ 14	PERCENTAGE COMBUSTIBLES RECORDER
	WATER FLOW CALORIMETER
	AUTOMATIC CONTROL OF C.V.

THIS INSTRUMENT IS SUITABLE FOR RETORT HOUSE, EXHAUSTER HOUSE OR THE LABORATORY. A LARGE SELECTION OF CHARTS IS AVAILABLE, AND OUR AIM IS TO MEET YOUR NEEDS.

SIGMA INSTRUMENT Co. LTD.
LETCHWORTH. HERTS.

KIRKHAM, HULETT & CHANDLER LTD.

UNION FOUNDRY, MANSFIELD, NOTTS. Phone : MANSFIELD 1256/7

WASHERS *for Ammonia and Benzol Extraction*

PURIFIERS AND PREHEATERS *for Sulphur Extraction*

CONDENSERS *for Water Extraction*

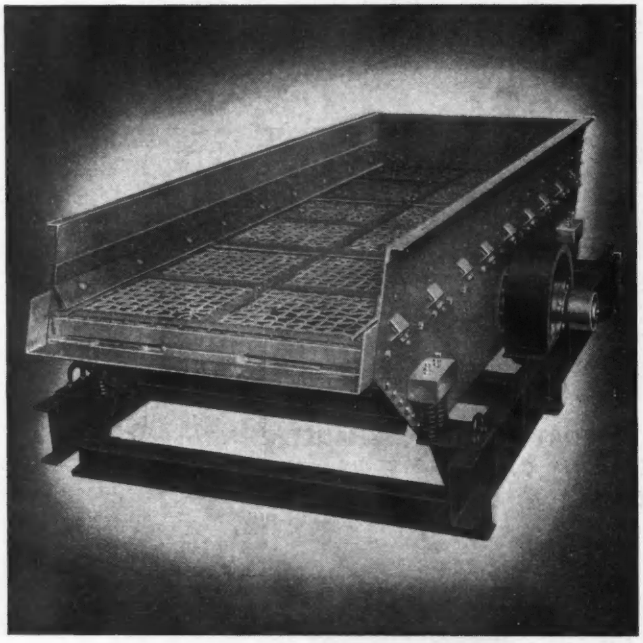
●

BENZOL PLANTS and TAR EXTRACTORS

LONDON OFFICE :

NORFOLK HOUSE, NORFOLK STREET, STRAND, W.C.2

Phone : TEMPLEBAR 2943 *Grams :* WASHER, ESTRAND, LONDON

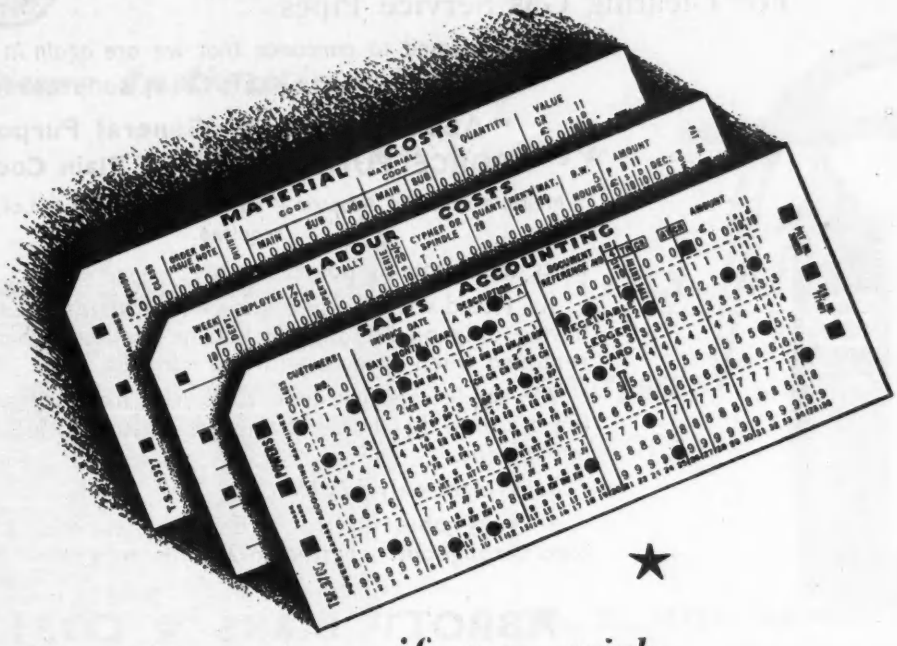


NIAGARA

In modernizing plant, Niagara Screens can invariably be installed in the space vacated by older types. Modernization costs less and inconveniences less than you think, though it betters profits.

NIAGARA SCREENS (Gt. Britain) Ltd.

Straysfield Road, Clay Hill, Enfield, Middlesex



★

if you wish

to increase your output

mechanise

your accounting

★

write for full particulars of

POWERS

punched card methods

POWERS ACCOUNTING MACHINES

POWERS-SAMAS ACCOUNTING MACHINES LTD.

POWERS-SAMAS HOUSE . HOLBORN BARS · LONDON, E.C.1

"ABBIRKO" FORCE PUMPS

For Clearing Gas Service Pipes

TRADE ABBIRKO MARK

We are pleased to announce that we are again in a position to give delivery EX STOCK of our renowned

"Abbirko" No. 77 General Purpose FORCE PUMP fitted with Plain Cock :

Multiple Screwed Adaptor ¼" to 1" to screw into end of nozzle if required.

Note the following points :—

1. Fitted with a single stage Pump **inside** the container, having only one strong thick Cup Leather, which can be removed when necessary in two minutes.
2. Ample capacity, will clear the majority of Service Pipes up to 1¼ inches diameter. Fitted with Screw Plug for Solvent.
3. Weight only 12½ lbs.
4. Very robust and strong design. Best quality materials used throughout. Tested to 200 lbs. pressure.

Write for particulars to Sole Makers :

ABBOTT, BIRKS & CO. LTD.

90-91 Blackfriars Road, LONDON, S.E.1.

Phone : Waterloo 4066 (4 lines) 'Grams : Abbirko, Sedist, London

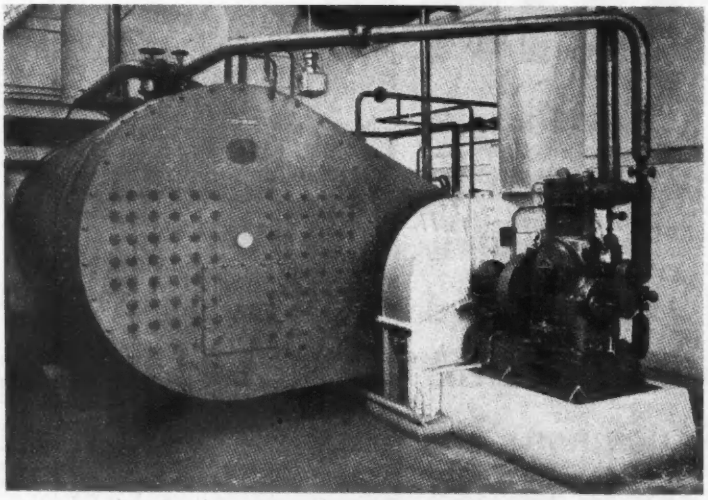
SISSON STEAM ENGINES

FOR LONG PERIOD CONTINUOUS RUNNING

HIGH SPEED
TOTALLY ENCLOSED MECHANICAL LUBRICATION
SPEED ADJUSTMENT GEAR
DUST EXCLUDING FITTINGS (If required)

■

EXCEPTIONALLY LOW STEAM CONSUMPTION UNDER VARYING LOADS OBTAINED BY SISSON PATENT AUTOMATIC CRANK-SHAFT GOVERNOR



SISSON ENGINE DIRECT COUPLED TO FAN FOR SPENCER-BONECOURT WASTE HEAT BOILER

FOR DRIVING—
EXHAUSTERS,
BOOSTERS,
DYNAMOS,
FANS,
PUMPS,
SKIP HOISTS,
LIFTS,
C.W.G. PLANT
BENZOLE AND AMMONIA WASHER ELEVATORS.
BY DIRECT COUPLING, CHAIN, BELT OR GEAR

■

SISSON PATENT AUTOMATIC CONTROL GEAR CAN BE COMBINED WITH ELEVATOR AND WINCH ENGINES

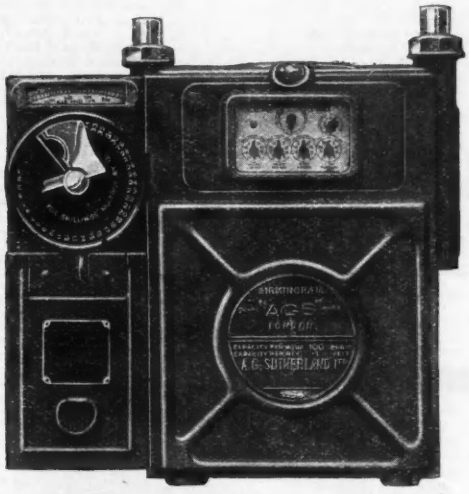
W. SISSON & Co. Ltd., GLOUCESTER, ENGLAND.

Telephones : 2295 & 6 Gloucester

Telegrams : "Sisson, Gloucester"

"A.G.S."

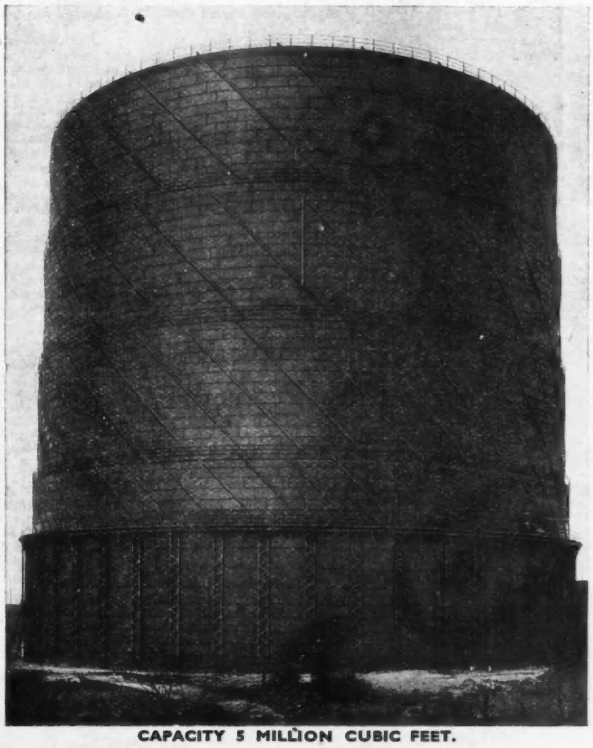
A Sure Indication for the Future . .



Gas Meters

Unsurpassed for Quality, Accuracy & Reliability

A. G. SUTHERLAND LTD.
WARWICK RD., GREET, BIRMINGHAM, 11.
And at LONDON and NOTTINGHAM



CAPACITY 5 MILLION CUBIC FEET.

C. & W. WALKER
LIMITED.
DONNINGTON,
Nr. WELLINGTON—SHROPSHIRE
'Phone : Wellington-Shropshire 12
'Grams : "Fortress," Donnington, Shropshire.

SPIRAL GASHOLDERS

DESIGN by Specialists.

MATERIALS of Best Quality.

CONSTRUCTION in our own Works, by Trained Workmen, Under Efficient Erectors.

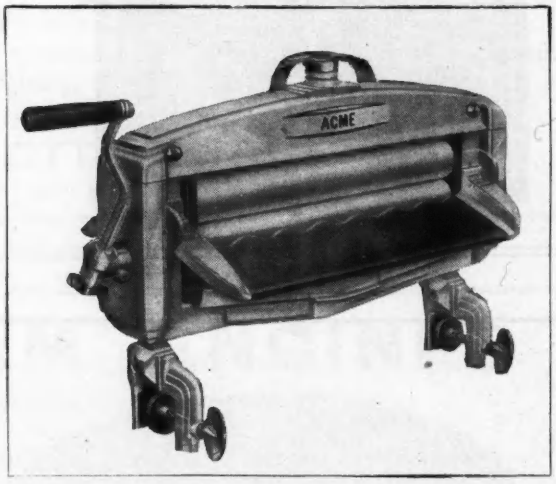
ERECTION by Experienced Erectors.

Riveted or electrically welded.

LONDON OFFICE: 70, VICTORIA STREET, S.W. 1. 'Phone: Victoria 5842. 'Grams: "Fortress," Sowest, London.

The test of a good washing machine is now — as always

Is it fitted with an ACME ?



When women think of a wringer they just naturally think of an Acme. When you tell them your washing machines are Acme-fitted they will know without doubt they are the machines they want. The Acme has everything a woman needs to ease the strain of the old hand-wringing washdays—a permanent wave to guide the clothes, a two-way drain to save all splashing—*and* scientifically applied pressure to force the last clinging particle of dirt out of either a heavy blanket or a delicate garment.

★ ★ ★

Only years of manufacturing experience can turn out a cleanser-wringer which wears so well and functions so perfectly. Each detail of an Acme has been planned, studied and perfected in the light of experience and constant research. It has behind it a long tradition of fine workmanship and good service. You can trust it right up to the mark.

★ ★ ★

Now, when you are ordering your washing machines—with your customer always in mind—make sure that they are fitted with the always-efficient, trustworthy Acme Cleanser-Wringer. It is what your customer will look for. Give her the true satisfaction of knowing that she has bought the best. She knows, that you can't beat an Acme.

ACME WRINGERS LTD · DAVID STREET · GLASGOW S.E

INDEX TO "JOURNAL" ADVERTISERS

A — PAGE

A.C.E. Machinery, Ltd. ... ...
Acme Wringers, Ltd. 40
Abbott, Birks & Co., Ltd. 38
Accurate Recording Instrument Co. 26
Acheson, E. G., Ltd. ... ...
Aerospray Manufacturing Co., Ltd. 20
Albright & Wilson, Ltd. 25
Alder & Mackay, Ltd. ... ...
Ascot Gas Water Heaters, Ltd. ... ... Cover IV
Ashmore, Benson, Pease & Co., Ltd. ... ...
Ashworth & Parker, Ltd. ... ...
Aspinall's (Paints), Ltd. S4
Associated Lead Manufacturers ... ...
Automatic Telephone & Electric Co., Ltd. ...
Automaticket Ltd. ... ...
Automotive Products, Ltd.... ... ...
Averill, C. R., Ltd. 31

B

Bagnall, W. G., Ltd. S1
Bale & Church, Ltd. S5
Balfour, Henry, & Co., Ltd. ... ...
Bell's Asbestos & Engineering, Ltd. ... ...
Bellman Hangars, Ltd. ... ...
Benham & Sons, Ltd. ... ...
Boydell, E., & Co., Ltd. ... ...
Braddock, J. & J. 64
Bratt Colbran, Ltd. 28
Bray, George, & Co., Ltd. ... ...
Bristol's Instrument Co., Ltd. ... ...
British Fittings Co. (Hendon), Ltd. ... ...
British Flint & Cerium Manufacturers, Ltd. ... 72
British, Foreign & Colonial Automatic Light Controlling Co., Ltd. ... ...
British Furnaces, Ltd. 70
British Gas Council 4
British Gas Purifying Materials Co. S4
British Monomarks, Ltd. ... ...
British Thomson Houston Co., Ltd. 33
British Vacuum Cleaner & Engineering Co., Ltd.
Broadbent, J. C., & Co., Ltd. ... ...
Broadbent, Thomas, & Sons, Ltd. 12
Brockhouse Heater Co., Ltd. 33
Broom & Wade, Ltd. ... ...
Brotherhood, Peter, Ltd. ... ...
Bugden, Thos., & Co. S3

C

Cannon Iron Foundries, Ltd. 19
Carrington, Tom, & Co., Ltd. 69
Cellactite & British Uralite, Ltd. ... ...
Cementation Co., Ltd. ... ...
Chaseside Engineering Co., Ltd. ... ...
Chemical Engineering & Wilton's Patent Furnace Co., Ltd. 9
Clapham Bros., Ltd. 30
Clayton, Son & Co., Ltd. ... ...
Clough (Croydon), Ltd. ... ...
Cochran & Co. (Annan), Ltd. 21
Cochrane & Co. (Shettleston) Ltd. ... ...
Collins, Thomas, & Co., Ltd. ... ...
Concrete Proofing Co., Ltd. 20
Connell, James N. 26
Consolidated Pneumatic Tool Co., Ltd. ... ...
Constructors, Ltd. ... ...
Corner, G., & Co., Ltd. ... ...
Cort, Robert, & Sons, Ltd. ... ...
Cowper Penfold & Co., Ltd. ... ...
Crane, Ltd. S3
Crone & Taylor, Ltd. 18
Crossley, Bros. ... ...
Crow, Fred B. ... ...
Curtis, Algernon Lewin S2
Cutler, Samuel, & Sons, Ltd. 66
Cuxson, Gerrard & Co., Ltd. ... ...

D

Danks, of Netherton, Ltd. ... ...
De la Rue Gas Development Ltd. ... ...
Dempster, R. & J., Ltd. ... ...
Dempster, Robert, & Sons, Ltd. S4
Derbyshire Silica Firebrick Co., Ltd. ... ...
Devonarc Welding Works S4
Dewrance & Co., Ltd. ... ...
Diaphragm & General Leather Co., Ltd. ...
Dick, R. & J., Ltd. ... ...
Donkin (The Bryan) Co., Ltd. ... ... Cover II
Douglas, William, & Sons, Ltd. ... ...
Drag Scraper & Engineering Co., Ltd. 31
Drakes, Ltd.... ... ...
Drew, H. B., Ltd. 26
Dunlop Rubber Co., Ltd. (General Rubber Goods Division) ... ...

E

Edgar, William, & Sons, Ltd. ... ...
Electroflo Meters Co., Ltd. ... ...
Electrolux, Ltd. ... ...
Elliott Bros. (London), Ltd. ... ...
Ether, Ltd. ... ...
Ewart Chainbelt Co., Ltd. S2

F

Falk, Stadelmann Co., Ltd. ... ...
Filtrators, Ltd. ... ...
Firth, Blakeley, Sons & Co., Ltd.... ... ... S4
Flavel, S., & Co., Ltd. 69
Fluxite, Ltd.... ... ... S4
Foster Transformers & Switchgear Ltd. ... ...

PAGE

Four Oaks Spraying Machine Co., Ltd. 72
Fraser & Chalmers, Engineering Works. ... ...
Friedman, Athill, Ltd. ... ...

G

Gas Engineers' National Guild ... ...
Gas Meter Co., Ltd. 2
Gas Purification & Chemical Co., Ltd. S4
General Gas Appliances, Ltd. 16
Gibbons Bros., Ltd. ... ...
Gibbons (Dudley), Ltd. ... ...
Gills Pressure Castings ... ...
Glenboig Union Fireclay Co., Ltd. ... ...
Glover, George, & Co., Ltd. 1
Glover, Thomas, & Co., Ltd. 44
Goodall Clayton & Co., Ltd. ... ...
Goodyear Mechanical Goods ... ...
Grant & West, Ltd.... ... ...
Grant, David, & Co., Ltd.... ... ...
Green & Boulding, Ltd. S5
Greening, N., & Sons, Ltd. 1

H

Hamilton, A. H., & Co., Ltd ... ...
Hannan & Buchanan S2
Hardman & Holden, Ltd. ... ...
Harris & Pearson, Ltd. ... ...
Harrisons (London), Ltd. S4
Harvey, G. A., & Co. (London), Ltd. ... ...
Heat & Air Systems, Ltd. 18
Helliwells, Ltd. 27
Hesketh, Gordon ... ...
Hilmor, Ltd.... 69
Holden & Brooke, Ltd. ... ...
Holmes, W. C., & Co., Ltd. S7
Honeywell-Brown Ltd. ... ...
Horsley Bridge & Thomas Piggott, Ltd. 13
Horstmann Gear Co., Ltd. ... ...
Humphreys & Glasgow, Ltd. 42
Hyde, Silas, Ltd. ... ...

I

I.C.I. Metals, Ltd. ... ...
International Coin Counting Machine Co., Ltd.... 71
International Combustion ... ...

J

Jeavons, E. E., & Co., Ltd. S2
Jeavons Engineering Co. ... ...
Jenkins, W. J., & Co., Ltd. ... ...
Jobling, James A., & Co., Ltd. ... ...

K

Keay, E. C. & J., Ltd. S1
Keith Blackman, Ltd. S8
Key Engineering Co., Ltd.... ... ... S3
King, George W., Ltd. 70
King, Walter, Ltd.... ... ...
Kings Patent Agency, Ltd.... ... ... S5
Kirkham Hulett & Chandler, Ltd. 36
Kleenoff Co.... ... ...
Klinger, Richard, Ltd. ... ...

L

Laidlaw, R., & Son, Ltd. ... ...
Lamont, James H., & Co., Ltd. 23
Lancashire Dynamo & Crypto, Ltd. 24
Le Bas Tube Co., Ltd. ... ...
Lomax & Smith, Ltd. S2
London Electric Firm, Ltd. ... ...
London Nameplate Manufacturing Co., Ltd. ...

M

MacPherson, Donald, & Co., Ltd. ... ...
Main, R. & A., Ltd. 61
Main Water Heaters, Ltd. 57
Mavitta Drafting Machines, Ltd. ... ...
Meltham Silica Firebrick Co., Ltd. ... ...
Metronic Instrument Co., Ltd. ... ...
Metropolitan Leather Co., Ltd. ... ...
Mewburn, Ellis, & Co. S5
Midland Bank, Ltd. ... ...
Milnes Meters, Ltd. 36
Ministry of Fuel 14
Ministry of Labour 32
Mitchell, H., & Co.... ... ...
Mors Moler ... ...

N

National Cash Register Co., Ltd. ... ...
National Enamels, Ltd. 69
National Gas Water Heater Co., Ltd. ... ...
National Savings Committee ... ...
Neal, R.H. , & Co., Ltd. ... ...
New Bowson Coal Co., Ltd. S2
Newton Chambers & Co., Ltd. 58
Niagara Screens (G.B.), Ltd. 36
Nicholson & West, Ltd. ... ... Cover II
North British Rubber Co., Ltd. ... ...
Northern Metal Trading Co. Ltd. ... ...
Northern Pump & Equipment Co., Ltd. ... ...

O

Oxford University Press ... ...
Oxley Engineering Co., Ltd. ... ...

P

Parkinson & Cowan (Gas Meters), Ltd. 44
Parkinson Stove Co., Ltd. ... ...
Pass, E., & Co., Ltd. ... ...
Peckett & Sons, Ltd. S2
Peebles & Co., Ltd.... ... ...
Perfecta Gas Appliances, Ltd. ... ...
Permutit Co., Ltd. ... ...
Pitman, Sir Isaac & Sons, Ltd. ... ...

PAGE

Poles, Ltd. ... ...
Pollock, A., & Co. ... ...
Power Gas Corporation Ltd. ... ...
Powers-Samas Accounting Machines, Ltd. ... 37
Press, William, & Son, Ltd. ... ...
Puisometer Engineering Co., Ltd.... ... ...

R

Radiant Heating, Ltd. 3
Radiation, Ltd. 62, 63
Rawlplug Co., Ltd. 34
Reavell & Co., Ltd.... 26
Renfrew Foundries, Ltd. 29
Roneo, Ltd. 12
Royal Institute of Chemistry of Great Britain and Ireland ... ...
Rubber Abestos Fibre Ltd. ... ...
Russell, R., & Sons, Ltd. ... ...

S

Salter, T. E., Ltd. ... ...
Sawer & Purves 66
Scottish Non-Ferrous Tube Industries, Ltd. ... 71
Sentinel & Co.... ... ...
Siebe Gorman & Co., Ltd.... ... ...
Sigma Instrument Co., Ltd. 35
Sisson, W., & Co., Ltd 38
Simon-Carves, Ltd.... ... ...
Slingsby, W., & Co., Ltd. S2
Smith Meters Ltd. ... ...
Spencer Bonecourt, Ltd. ... ...
Spencer (Melksham), Ltd. ... ...
Sperryn & Co., Ltd. 43
Stanton Ironworks Co., Ltd. S6
Staveley Coal & Iron Co., Ltd. 34
Steels Engineering Products, Ltd.... ... ...
Stein, John G., & Co., Ltd. 23
Sterling Textile Industries Ltd. S3
Stewarts & Lloyds, Ltd. ... ...
Stoves, Ltd. ... ...
Strachan & Henshaw, Ltd.... ... ...
Stringer Bros. ... ...
Sugg, William, Ltd.... 6
Sutcliffe Speakman & Co., Ltd. ... ...
Sutherland, A. G., Ltd. 39
Sykes & Company ... ...

T

Taylor Woodrow Construction, Ltd. 10
Telegraph Construction & Maintenance Co., Ltd. ... ...
Thomas & Bishop, Ltd. 69
Thomas, Richard, & Baldwins, Ltd. 15
Trapinex, Ltd. ... ...
Tully, Sons, & Co., Ltd. ... ...
Turbine Furnace Co., Ltd. S3
Turnbridge Manufacturing & Supply Co., Ltd....
Turners Asbestos Cement Co., Ltd. ... ...

U

Ufix Boiler Co., Ltd. ... ...
Underpressure Engineering Co., Ltd. ... ...

V

Vale, Thomas, & Sons, Ltd. ... ...
Visco Engineering Co., Ltd. ... ...
Vulcan Stove Co., Ltd. ... ...

W

Wade, Smith, & Co., Ltd. ... ...
Wakelin, F. H., Ltd. S4
Wailes Dove Bitumastic, Ltd. 7
Walker, C. & W., Ltd. 39
Walker, Crosweller & Co., Ltd. ... ...
Walker, James, & Co., Ltd. S8
Waller, George, & Son, Ltd. 11
Wellington Tube Works, Ltd. ... ...
Westbury & Seend Ore & Oxide Co. Ltd. ... 71
West's Gas Improvement Co., Ltd. ... Cover III
West's Piling & Construction Co., Ltd. ... ...
Westwood & Wrights, Ltd. ... ...
Whessoe, Ltd. 5
Whitehouse, Wm., & Co., Ltd, ...
Whittaker Ellis, Ltd. 17
Widnes Foundry & Engineering Co., Ltd. ...
Wild, M. E., & Co., Ltd. ... ...
Wilkes, A. H., & Co., Ltd. 70
Willey & Co., Ltd. 22
Williams, John E., Ltd. ... ...
Williamson Cliff, Ltd. ... ...
Wilson, George, Gas Meters, Ltd. ... ...
Winn & Coales, Ltd. 8
Winn, Charles, Ltd. ... ...
Witkin Reynolds & Co., Ltd. ... ...
Wood, Hugh, & Co., Ltd. ... ...
Woodall-Duckham Vertical Retort & Oven Construction Co. (1920), Ltd. ... ... Cover I
Wright, Alexander, & Co., Ltd. ... ...

Agencies S5
Appointments Wanted and Vacant ... S5, S6
Books ... ...
Company Notices ... ...
Contracts Open S5
Educational S5
Miscellaneous S4
Patents S5
Plant, &c. S4
Plant for Sale and Wanted S5
Publications S4
Repairs S4
Trade Cards 69

HUMPHREYS & GLASGOW LTD.

Installations for Production

of

Carburetted Water Gas

Blue Water Gas

Producer Gas

Special Gas for Synthetic Processes

Hydrogen

Ancillary Plant

for

Waste Heat Steam Production;

Gas Cooling & Cleaning; Fuel Handling & Charging;

Ash & Dust Disposal; etc.

Humglas House,
Carlisle Place,
London, S.W. 1.

H & G

Telephone:
Victoria 3961 (six lines)
Telegrams:
"Humglas, Sowest, London."

Established 1892

CONTENTS

EDITORIAL

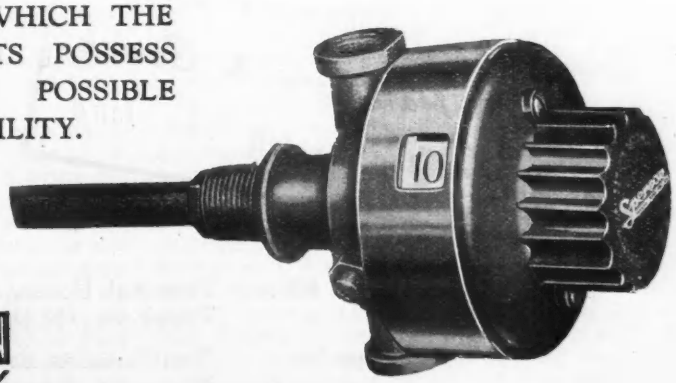
	Page
Improving Gas Water Heaters	45
Sulphate of Ammonia	45
Gas Investments	46
"Gas Service" Pocket Book	46
Electrical Appliances	46
Electricity in the Kitchen	46
The Young Idea	46
The Gas Industry in Germany	46
"Gas Journal" Calendar and Directory	47
Personal	47
Obituary	48
News in Brief	48
Diary	49
Cut in Paper for Circulars	49
Aspects of Distribution Work	49
Industrial Ten	49
Yorkshire's New Regional Headquarters	49
Junior Activities	50
The Service Side	50
The Ruhr Gas System	51
The Price of Coal: The Case for the Customer. By Commander Hyde C. Burton, F.C.A.	52
Devonshire Lignite Enterprise	52
Sulphate of Ammonia and Food Production: Work of the British Federation	53
Coventry Enterprises	54
Education for Industry and Commerce	54
Chesham Gas Company's Centenary Celebrations	54
Newcastle Council Tenants' Party	54
Gas Codes Omnibus	54
University of Leeds	55
Mechanical Handling Exhibition	55
District Heating	55
Thermal Efficiency of Gas Producers	55
Factors in the Design of Pin-Hole Gas Burners. By R. Jessel, Ph.D., F.Inst.P., A.M.I.E.E., and H. R. Hindley, B.Sc., F.Inst.P., Ascot Gas Water Heaters, Ltd.	56
Gas Undertakings' Results	67
Company News	67
Gas Stocks and Shares	68
Publications Received	69
Gas Products Prices	69

Advertisement Index Page 41 **Publishers' Notice Page S4**

Spersom
TRADE MARK

THERMOSTATS

THE SPECIAL FEATURES WHICH THE "SPERSOM" THERMOSTATS POSSESS ENSURE THE HIGHEST POSSIBLE ACCURACY AND RELIABILITY.



ENTIRELY BRITISH MADE BY

SPERRYN AND COMPANY
MOORSOM ST BIRMINGHAM

PARKINSON & COWAN

(GAS METERS) LTD.

Yesterday's experience, today's knowledge, and tomorrow's invention will keep **Parkinson & Cowan** *equipment forever in the lead*

DOMESTIC & INDUSTRIAL METERS

Head Office: Terminal House, Grosvenor Gardens, London, S.W.1. Telephone: SLOane 0111.

Branches: North London, South London, Birmingham, Manchester, Newcastle, Glasgow and Belfast.

CMPC.3

GAS JOURNAL

Vol. 253 January 7, 1948 No. 4414

IMPROVING GAS WATER HEATERS

THE marks of care, patience, and ingenuity are shown in the work described by Dr. Jessel and Mr. Hindley, of the Research Staff of Ascot Gas Water Heaters, in the contribution they gave to the Institution of Gas Engineers at the Research Meeting a few weeks ago. They were concerned with the design of pinhole gas burners—one factor, and obviously an important one, in the composite design, including attractive appearance combined with safety and efficient performance, of the instantaneous gas water heater. It is wholly satisfactory to see the growing practical co-operation —as shown by the presentation of this contribution—between the appliance maker and the supplier of the gas consumed in the appliance; it is gratifying to note the high standard of technical skill and the measure of scientific approach shown by the manufacturers of appliances; it is more gratifying that at a meeting of experts, highly critical of each other's work, armed with the pin rather than the bludgeon, the manufacturers should come into the open to be "shot at" in the common cause. On later pages we give an abstract of the paper to which we refer. Our experience over many years is that authors shie at the very word "abstract." They explain to us that their papers—and this entirely irrespective of their length—are in themselves abstracts; and they almost plead the *reductio ad absurdum* theory, and this again irrespective of whether the papers or reports are "interim" or "final." But in this instance of the pinhole burner the authors have collaborated with us, and we thank them. In doing so we have in mind also the need in general at Institution meetings for summaries of communications—summaries which do give a broad idea of the contents of the communications. To suggest that the "Summary" of the paper by Dr. Jessel and Mr. Hindley as given in blue book No. 327 of the I.G.E. is absurd. Here is the summary: "This paper presents the results of a study of some of the properties of the flames which result when unaerated coal gas burns as it emerges from small ports drilled vertically through the wall of a horizontal tube; an arrangement commonly known as a pinhole burner." The rest of the "summary" page is left blank. So are we.

The impression left by the "summary" is unfortunate, because the work described in the paper is so obviously of importance and of the very nature to result in better gas water heating service—to the benefit of the Gas Industry and, it is to be hoped, to the benefit of the sponsors of the research. The work, as we have said, is of import. As one speaker in the discussion aptly remarked, the designer finds himself circumscribed by other features of the appliance, the size and shape of the combustion chamber and also the pressure at the burner; and he is often hampered by cruel economies to the extent that the aims based on his scientific investigations have to be seriously curtailed to satisfy the need for an inexpensive product. Now the aim of the research under review is to design a burner (to occupy a given area) which is capable of passing a given volume of gas of known calorific value which will have flames as short as possible both when new and throughout its life and which will radiate the minimum of heat and light sweetly without explosion. A burner based on these conceptions was described by the authors and criticized in the discussion on the ground that it involved too large a number of ports (550, each passing 3 B.Th.U. per minute). Final design must necessarily, as we have mentioned, be a matter of compromise, and it should be emphasized that the work is not complete and that much remains to be done. The authors' further findings will be welcomed.

SULPHATE OF AMMONIA

ELSEWHERE in this issue we publish extracts from the annual report of the British Sulphate of Ammonia Federation covering the 50th year of propaganda work undertaken successively by the Sulphate of Ammonia Committee, the Association, the Federation, Nitram, Ltd., and Imperial Chemical Industries, Ltd. The report is of interest not only from the statistical angle, but as showing the progress that has been made in the successful application of sulphate of ammonia to British agriculture. Imperial Chemical Industries, Ltd., as agents of the Federation, have put into operation a programme of investigation which it is believed will produce convincing evidence of the value of sulphate of ammonia in livestock and grass farming. An extremely interesting experiment in communal grass drying, to which we shall refer in more detail in a later issue, has been carried out in Gloucestershire by the Milk Marketing Board in collaboration with I.C.I., using coke-fired apparatus, with the object of providing high protein winter feeding stuff for a number of farmers whose acreages would not justify the capital cost of individual grass drying equipment. The National Agricultural Advisory Service has been established to cover all aspects of agricultural practice, and the Federation's pre-war research work, the main object of which is the improvement of the quality of sulphate of ammonia, has been resumed.

Further substantial recovery from war-time difficulties is indicated by a world production of 2,840,000 metric tons of fixed nitrogen in 1946-47 against 1,768,000 metric tons of fertilizer nitrogen in 1945-46 and only 123,000 tons short of the total for 1938-39. Production of ammonia products and ammonium sulphate in the British Isles was 1,430,000 tons, or almost double the 772,000 tons produced in the immediate pre-war year, compared with 1,429,200 tons in 1944 and 1,375,600 tons in 1945. Home agricultural consumption at 561,500 tons was still 103,780 tons below the peak war-time year 1943-44, but was well over double the 269,000 tons consumed in 1918-19. Exports of sulphate of ammonia from the United Kingdom at 247,801 tons were 26,788 tons below the figure for the previous year, and compared with 60,683

tons in the peak home consumption year 1943-44. The largest purchasers were India and Burma, and Ceylon; the former, however, showed a large reduction compared with the previous year, while Ceylon's purchases increased. In 1929-30, when China, Japan, and Spain were substantial buyers, the total of United Kingdom exports was 654,973 tons. At that time, however, the home agricultural consumption was around 160,000 tons, or less than a third of the present level of consumption.

GAS INVESTMENTS

SINCE the middle of December there has been a remarkable increase in the volume of buying of gas stocks, the average daily number of transactions recorded on the London Stock Exchange having practically doubled within a single week; on one day, indeed, there was a total of 101 dealings against a daily average of around 40 for recent months. As a consequence the New Year has opened with the prices of many classes of stock several points higher than a month ago, although the general level is still below that for the six months prior to the General Election of 1945. In the week which ended on Christmas Eve increases were recorded in the prices of some 25 classes of gas investments, while there were falls in only three.

The increased buying has been mainly by institutional investors seeking a somewhat more favourable yield than can be obtained in the gilt-edged market, and influenced also by the possibility of a few points of capital appreciation when nationalization of the Gas Industry is accomplished. The trend is in line with what has been experienced in other directions. Each nationalization measure—coal, cables, railways, and electricity—has aroused similar interest, and each of the industries concerned has offered some stocks in which there were possibilities of capital gains if held until the vesting date.

Until the Bill to effect the transfer of the Gas Industry to public ownership is published little purpose can be served in discussing the possible terms of compensation, but as one guess is as good as another, it would not be surprising if the Bill were based on the taking over of existing stocks at market prices similar to the principle adopted for the transport and electricity undertakings. It is more uncertain that if that method is adopted the market prices chosen would include a pre-option, but such an option was included for railway and electricity stocks, and the fact that the present prices are still below the 1945 level suggests to buyers that they are not taking too great a risk. Recent dealings have narrowed the gap between 1945 and the present level. As the City Editor of the *Daily Telegraph* remarked one day last week, gas companies continue to raise the funds they need for essential capital projects by their usual methods, private placings and issues of stock by tender, and the stock issues continue to take the form largely of 3½% Debentures or of 4% Preference stock. Many of the stocks issued since the nationalization threat became imminent have fixed maturity dates, and the issues obtain Treasury sanction. But the Treasury has not committed itself to honouring the terms of any particular issue, though holders will doubtless think themselves hardly done by if such issues are not allowed to run to maturity. In this case there is an element of risk which may well deter the small investor.

"GAS SERVICE" POCKET BOOK

We offer our apologies to subscribers to the 1948 edition of the Gas Service Pocket Book for an error in the Diary Section. On pages 26, 27, and 34 Good Friday, Easter Monday, and Whit Monday are given as occurring on on April 9, April 12, and May 31. The correct dates are March 26, March 29, and May 17. On page 65, col. 1, line 19, "Calorie" should read "calorie"; and on page 69, line 9, $\frac{6}{8}$ should read $\frac{8}{8}$

ELECTRICAL APPLIANCES

There have been complaints from abroad about the quality of the electrical exports sent from this country, and the electrical Press has drawn attention to this state of affairs. It is pointed out that all the dealers and stores are "cluttered up with high priced domestic electrical appliances that the public is becoming increasingly chary of buying." The most reputable manufacturers of first-class goods confess to finding it difficult to get export markets; they also find that the home market is saturated, in certain lines. If stores are too well stocked with electrical gadgets, who is to blame? The Electrical Industry for optimistic overproduction? The electrical machine has built itself up optimistically and entered into markets in which it had no economic rights; and now it bewails the fact.

ELECTRICITY IN THE KITCHEN

The British Electrical Development Association has issued a little brochure on electric kitchen design for small houses. This fragment of literature is ambitious, as is most of the printed material put out by our competitors, and will have some effects in differing circles; circles on which we, too, should be working. The point we would make is that all the electric appliances set out in the booklet can be obtained now. The brochure will be scanned by many people, who will read into it more than the Gas Industry would like. Gas has its counter-parts in the matter of propaganda; gas may even have a parallel to this suggestion of a universal electric kitchen. Electricity has produced a standard kitchen. The cost of installation will be high, but this does not seem unduly to worry the electricians; nor does the running cost. After all, the consumer will have to foot the bill.

THE YOUNG IDEA

The accent these days is on training; not in the sense of travel but in the sense of starting people on the right lines. Technical and training colleges are plentiful to-day and they serve a very useful purpose in the dissemination of knowledge and skill in the sciences and the arts. Domestic subjects are taught in some of these institutions, where students, apart from the theory, get a large slice of practical work which prepares them for a fuller life. Many of these places are well-equipped and have enthusiastic staffs who, in turn, produce students as keen as mustard. Some colleagues are indifferently equipped, and to the staff, the word enthusiasm is merely an entry in the dictionary. Gas undertakings can be of inestimable service to the professorial and student bodies alike by seeing that colleges in their areas of supply have the latest gas equipment. Such an enlightened policy will reap rich dividends; a do-nothing policy will make contumely our lot in this age of competition. Our most modern appliances have scarcely any peers in performance and appearance, and we may rest assured that, when installed, they will do us more good than all the words in a symposium on "Service." The practical and visible proof is all that is required for the young idea. Installing an appliance is, however, only part of the job. Where learners operate any kind of equipment, that equipment must be maintained with unfailing regularity because it will need extra attention. It is only good publicity, or salesmanship, to keep something in good working order. Those who take the trouble to enrol in classes should be assisted in every way during their student hours. They must go out into the cold, cheerless world at a later date; but they must go out with a kindly thought for the gas undertaking that helped to make them more useful to society.

THE GAS INDUSTRY IN GERMANY

A recent issue of *Gas-und Wasserfach*, contains articles of a purely technical and topical-technical kind. Among the former is one on shale distillation by A. Thau, illustrated by diagrams and appended with a bibliography of books and papers published during the last 20 years. The author enumerates methods of shale utilization in the light of varying economic and geographical factors. He traces the process from its English beginnings through the 1914-18 period to present-day Germany where, for several reasons, the process is mostly confined to Upper-Silesia and the Saar, for oil production purposes only. The issue also contains an article on the present state of the Gas Industry in England which is referred to as "the motherland of gas engineering." Material for the survey has been collected from available books and periodicals. Major Gas Associations,

their aims and workings, are mentioned, and the Women's Gas Council has not been forgotten. The survey ends by recording the optimistic note detectable in the Industry; only on occasions are doubts said to arise about the possibly curtailed liberty and fewer possibilities for research during the imminent days of nationalization. Topical is a paper read to the gas and water section of the U.S. Power-Economics Board by P. Schenk. Remarks about the running of gas-works in general and interspersed information about repairs of German gas-works lead to discussion of staff requirements and how essential it is that the foreman in particular should have knowledge and experience. The almost impossible situation of a works engineer is touched upon, who, however well he plans and calculates, may achieve nothing if the raw materials are not made available. The author emphasizes that the staff should be called upon to exercise economy, be made to feel personally responsible for the smooth working of the concern, and be given facilities to train. There is also an up-to-date story of the Ruhrgas Joint Stock Company, Essen, illustrated with production charts, and maps of the area they supplied in 1927 and now supply. On a later page of this issue of the "JOURNAL" we give an abstract translation of this highly interesting story.

"GAS JOURNAL" CALENDAR AND DIRECTORY

We at Bolt Court make no secret of the fact that we are proud of the 1948 issue of the "GAS JOURNAL" Calendar and Directory, the first copies of which are now being despatched to subscribers. We are proud of it for more reasons than one, but chiefly because everyone on the staff has co-operated in compiling, revising, and producing what we think is the most complete gas directory that has yet appeared. No-one knows what fate awaits the Gas Industry in 1948 or after, but we cannot help feeling that whatever changes may occur in ownership and in personnel there will be no less need in the new world than in the old for a comprehensive guide to the Industry.

A year ago we were able to restore practically all the old features that came under the war-time security ban, to rearrange the pagination of the entire book, and to reconstruct the analysis of industrial, commercial, and domestic gas sales. We go further in the 1948 edition. In the first place the directory of gas undertakings and personnel has been revised with a greater thoroughness than has been possible under the strain of the war and immediate post-war years. We rely, of course, to a very great extent on the co-operation of the undertakings in returning to us the completed questionnaires which we send out, and the high percentage of forms returned for this issue reflects the interest taken by them in securing maximum accuracy in the information.

The County Classification, always a popular pre-war feature, especially to representatives of contracting and other firms calling on the chief officials of gas companies and gas departments, has been re-introduced, but in a new form, for the classification is combined with a grouping of the undertakings into the Administrative Regions recommended by the British Gas Council in its Notes on the Organization and Regional Boundaries of a Nationalized Gas Industry to the Ministry of Fuel and Power early in 1947. The inclusion of the B.G.C. map of those regions enhances the value of the classification.

The list of gas and allied organizations has not only been checked for new officials but has been overhauled in the light of changes in constitution. While the National Gas Council and British Commercial Gas Association—now merged in the British Gas Council—have disappeared, other bodies, such as the Gas Engineers' National Guild, have come into existence, and details are included in the list. Extended particulars of the personnel of the Ministry of Fuel and Power will promote readier contact with the departments dealing with the Gas Industry.

There has been considerable revision of the "Handbook," a memorandum on gas-works practice with general information and tables for daily reference in the gas and allied industries. Some sections deal with standard practice and call for no extensive alteration from year to year, but even these have been checked for latest references, while other sections have been entirely re-written.

The value of such a work as the Calendar and Directory can be judged by the quality and quantity of the advertising which it carries. In that sense it may be said that from both standpoints the 1948 issue constitutes a new record. There is more colour work in the display pages than hitherto, while the Advertisers' Directory and Buyers' Guide reflect in more concise form the wide range of products and services offered to the Industry by old and new advertisers.

A copy of the Calendar and Directory goes to every regular subscriber to the "GAS JOURNAL" and to every advertiser in the book itself. Outside those two communities, however, there are firms and individuals who for various reasons do not fit into either category and yet find the information indispensable to them. To such, copies are available at 25s. each (post free).

Personal

The retirement is announced of Mr. LEONARD HARPER, a Director of Horseley Bridge & Thomas Piggott, Ltd., since 1938, and London Manager for 23 years, after 43 years' service with the Company.

* * *

Owing to pressure of other business Mr. A. G. COLLEY has relinquished his Directorship of the Parkinson Stove Company, Ltd., and Monitor Engineering and Oil Appliances, Ltd., with effect from Dec. 31, 1947.

* * *

Mr. F. B. RICHARDS, Chairman of the Woodall-Duckham Company, accompanied by Mrs. Richards, sailed for South Africa on Jan. 1. The Company has now under construction for the South African Iron and Steel Industrial Corporation, Ltd., coke oven and by-products recovery plants valued at over £2,250,000.

* * *

Mr. H. G. ALLEN, who has been Manager of the Birmingham branch of Falk, Stadelmann & Co., Ltd., since 1937, has been appointed to the Board and returns to London to take up an executive post. Mr. R. A. STENNING, Assistant Manager during the same period, has been appointed to succeed Mr. Allen.

* * *

Mr. S. TETLOW, a member of Accrington Town Council, has been elected Chairman of the Accrington District Gas and Water Board, replacing Alderman R. I. Constantine, who has held the post for five years. Appreciation of Alderman Constantine's services has been recorded. Councillor J. DEWHURST is the new Vice-Chairman.

* * *

Mr. JOHN E. P. BROOKS, who was before the war Accountant to the Uxbridge, Maidenhead, Wycombe and District Gas Company, and after serving with the forces from 1939 to 1945 was appointed Assistant County Secretary of the Gloucestershire branch of the National Farmers' Union, has been appointed Secretary of the Leicestershire branch of the N.F.U.

* * *

Colonel W. MONCRIEFF CARR, O.B.E., T.D., has been appointed full-time Chairman of the United Kingdom Gas Corporation on his resignation from the Managing Directorship as from Jan. 1. Mr. W. J. HODKINSON, General Manager, has been elected Technical Director to fill the vacancy on the Board occasioned by the death of the late Chairman, Mr. R. B. Ottley.

* * *

In the New Year Honours, Baron HYNDLEY, Chairman of the National Coal Board, was elevated to Viscount. The O.B.E. was conferred on Major G. H. KITSON, of Leeds, who was President of the British Commercial Gas Association in 1932 and was for many years Chairman of the Leeds Gas Committee, in recognition of his services to the National Savings movement in Leeds.

* * *

Mr. H. COUSINS, Publicity Manager of the British Aluminium Co., Ltd., will retire at the end of January, after completing 40 years' service with the Company. In anticipation of Mr. Cousins' retirement, the publicity department has been combined with the sales research and statistical section under Mr. C. G. MCAULIFFE, as Manager. Mr. E. G. FIELDING will be responsible as Publicity Officer for the publicity work of the department.

* * *

Mr. and Mrs. B. J. DEAKIN, of Burgh-le-Marsh, Lincs, celebrated their diamond wedding on Christmas Day, and among the many congratulatory messages received was a telegram from the King and Queen. Mr. Deakin was born at Tamworth, Staffs, 81 years ago, and served the Gas Industry for the greater part of his life, managing gas-works at Tamworth, Leavesden, Herts. (for the Metropolitan Asylum Board for 17 years, and at Mildenhall, Suffolk (for five years), before he took over the Burgh Gas-works in 1919, managing the undertaking until it closed in 1928. His younger son has followed in his footsteps, and was manager of gas-works at Ipswich, Queensland, before going to his present post at Napier, New Zealand.

Sowerby Bridge Urban District Council has accepted a tender, subject to Government approval, from Drakes, Ltd., Halifax, for the installation of continuous vertical retorts at the gas-works.

Obituary

Cyril G. Davis

We regret to record the death, which occurred at his home, 20, Cadogan Place, Knightsbridge, London, S.W.1, on Jan. 2, of Mr. CYRIL GEORGE DAVIS, Deputy Chairman of Radiation Ltd., and Chairman and Managing Director of the Davis Gas Stove Co., Ltd. He had made a good recovery from a serious illness some time ago and presided at meetings as recently as last month. The appliance manufacturing side of the Gas Industry has lost in him a unique personality. No one had done more to promote friendly relations on that side of the Industry or to establish and maintain contact between the makers of appliances and the gas undertakings who placed those appliances at the disposal of consumers.

His service to the Industry started in 1906 when as a young man he entered the Davis Gas Stove Co., Ltd., founded in 1873 by his father, who brought both Mr. Cyril and his brother, Mr. Harold N. Davis, into the business and had them trained, the one for the commercial field and the other, in Continental foundries and at home, for the technical and works management side. In the course of time Mr. Harold Davis became Chairman, and on his death, Mr. Cyril succeeded him. His Company was one of the earliest members of the Society of British Gas Industries, and in the summer of 1920 he received at the hands of Sir Arthur Duckham the presentation of a gold watch on relinquishing the Hon. Secretaryship of the S.B.G.I. Golfing Society after many years' service. He was also a keen yachtsman and a member of the Royal Thames Yacht Club. He became Chairman of the Council of the S.B.G.I. in 1920 and filled the office with that zeal and ability which characterized all his activities in the Industry.

When the first steps were taken in 1919 towards the formation of Radiation Ltd., Mr. Cyril Davis was one of the prime movers, and it was an obvious choice on the part of the participating companies that he should become a Joint Managing Director, a post he filled up to the time of his death. He was appointed Deputy Chairman of Radiation Ltd., in 1941 in succession to Mr. J. F. Davies, who became Chairman in place of the late Sir C. Herbert Smith.

* * *

The death has occurred at his home, Lindholm, Blairhill, Coatbridge, at the age of 70, of Mr. J. M. MARTIN, a Director of the Coatbridge Gas Company.

* * *

The death occurred on Boxing Day of Mr. W. H. SPICER, aged 71, formerly Chief Clerk of the Rushden District Gas Company, on the staff of which he served for nearly 50 years.

* * *

The death is reported of Mr. GEORGE HARRIS, of the Sales and Service Department of Cannon Iron Foundries, Ltd. He had devoted his whole career to the Gas Industry, and was formerly on the staff of the Redcar Gas Department.

* * *

The death is reported of Mr. J. W. SIMPSON, a former Manager and Accountant of the old Chesterfield Gas and Water Company, an appointment he held until 1919, when the concern was taken over by the Corporation. He was 84 years of age.

* * *

The death took place suddenly on Christmas Eve of Mr. SAMUEL M. STEARS, for many years Assistant to the Manager of the Belfast Gas Department. His father, the late Mr. Edward Stears, was Manager of the Lisburn Gas Department from 1874 till 1908.

News in Brief

In View of the Sustained Interest in " Publicity Parade," which depicts the publicity services of the British Gas Council, the exhibition at Gas Industry House will remain open until Jan. 31.

New Premises at Wolverhampton have been acquired by George Wilson Gas Meters, Ltd., from which it is hoped to render improved service. The address is Freeman Street, Heath Town, Wolverhampton. (Telephone 24178. Telegrams, Gasmeter, Wolverhampton.)

The Alliance and Dublin Consumers' Gas Company extended its hours of supply on Christmas Day to 16½ hours. Supply commenced at 7.30 a.m. and continued until midnight. The supply on Christmas Eve and the preceding days was from 6.30 a.m. to 2 p.m., and from 5.30 p.m. to 10.30 p.m.

The Newcastle-on-Tyne and Gateshead Gas Company is to carry out an extension scheme at Howdon-on-Tyne at a cost of about £1,750,000 and it is expected that work on the project will begin within two years. The extensions will treble the capacity of the existing plant at Howdon and will increase the total gas output by 10%. The work will take five years to complete. Negotiations for the purchase of the necessary land have been completed.

The Gas Charges (No. 2) Order, 1947, dated Dec. 31, enables gas undertakings to increase the price of gas, as from Jan. 5, without a permit, to cover any net increase in the cost of gas supplied due to *any* increase, on or after Sept. 1, 1947, (*a*) in the delivered price of coal or (*b*) the net cost of gas oil, after allowing for any increases in the price of coke on or after Sept. 1, 1947. The previous Order was limited to the specific coal, oil, and coke price increases which came into effect on the particular dates stated in the Order.

The North British Rubber Company has taken premises at Royal Court Buildings, Bigg Market, Newcastle-on-Tyne (Telephone 20534; Telegrams " Weba "), in order to give increased service to customers in the North of England. This branch, covering the counties of Durham, Northumberland, and Cumberland, is under the control of Mr. L. Corbet, who has been resident in Newcastle for a number of years and is well known in the North of England. He is assisted by Mr. W. Scott, who is transferred from headquarters in Edinburgh.

Serious Concern is being expressed by Alresford (Hants) consumers at an increase of no less than 2s. 2d. per 1,000 cu.ft. in the price of gas. This rise closely follows another of 6d. last October and brings the charge up to 9s. 11d.—believed to be the highest figure in the country for any undertaking of comparable output (14 millions). Consumers say they cannot understand how even the higher costs of coal and wages can justify an increase of nearly 37% in two months, and they are pressing for an official investigation. The Parish Council, the local Chamber of Trade, and the Member for the constituency are all being asked to take up the matter. The Alresford Company is a subsidiary of Associated Gas and Water Undertakings.

The Cold Spell early in December resulted in the daily gas demand at Warrington exceeding six million cu.ft. for six days in succession, the peak day being 6,396,000 cu.ft., against the previous year's record of 5,990,000 cu.ft.

Chief Officers of the Sheffield and District Gas Company held their 16th annual dinner and dance at the Royal Victoria Station Hotel on Dec. 23. Among the guests present were Mr. Ralph Halkett, a Director of the Company, Mrs. Ralph Halkett, and Mrs. J. N. Duncan.

A New Gasholder of 80,000 cu.ft capacity was inaugurated recently at Tayport, when the main valve was turned on by Provost Barron. Mr. J. W. Garrie, Engineer and Manager, proposed the toast of the contractors, and Mr. J. Lindsay Burns, of H. Balfour & Co., Ltd., Leven, replied.

The Council of the British Welding Research Association has accepted an offer from the British Oxygen Co., Ltd., to provide a prize fund of £100 per annum for three years for a competition relating to welding. A single prize of £100 is offered in 1948 and will be awarded for the best paper submitted on research into welding or its application. Papers will require to be submitted on or before Sept. 30, 1948.

Blackburn Gas Consumers have been strongly urged to save gas because the Greenbank plant is rapidly reaching saturation point and hopes of getting new machinery are receding. Mr. H. N. Dann, Deputy Engineer and Manager, has addressed an appeal to consumers and the Commercial Economy Committees. It was suggested a fuel watcher be appointed in each mill or office with authority to switch off lights, radiators, &c., in peak hours in cases coming under his notice.

A Successful Series of Christmas cookery demonstrations was held at the Leamington Priors Gas Company's showrooms with the co-operation of Alfred Bird & Sons, Ltd. The demonstrations were given by Mrs. Clare and Mrs. Payne, who have proved themselves popular with Leamington housewives on a number of previous occasions. The Mayoress, Mrs. George Purcell, performed the opening ceremony, when she was introduced by the Chairman of the Gas Company, Dr. Harold Mason. Emphasis was given to the need for fuel economy in addition to sound advice on Christmas cookery.

Glasgow Lighting Department needs 50,000 sq. ft. of glass and 250,000 gas mantles for immediate replacements in street and stair lights, and to keep pace with breakages. It is getting practically none of either. The result is that breakages are mounting up alarmingly, and little can be done about them. Every month hundreds of panes of glass in street lanterns are smashed. Mantles are broken with the glass or with the first puff of wind. Glass from the lanterns has to be salvaged, and used to patch up stair lights in tenements where breakages are even more numerous. Practically all the damage is malicious, and it is difficult to trace those who do it.

Diary

Jan. 12.—Women's Gas Council: Executive Committee, Gas Industry House, 1 p.m.

Jan. 12.—London and Counties Coke Association: Technical Committee. Gas Industry House, 2.30 p.m.

Jan. 12.—Women's Gas Council (Manchester Branch): Address, "Bouquet for Housewives," by R. J. Gregg, Sales Manager, Ascot Gas Water Heaters, Ltd., and issue of special brochure, "Hot Water Highlights." Manchester Gas Department Showrooms, 2.30 p.m.

Jan. 13.—British Gas Council: Central Board, Gas Industry House, 2.30 p.m.

Jan. 13.—Federation of Gas Employers: Central Committee, Gas Industry House, 11.30 a.m.

Jan. 13.—National Federation of Gas Coke Associations: General Committee, 10 a.m., Gas Industry House.

Jan. 14.—London and Southern Junior Gas Association: Visit to the De La Rue Gas Development Centre, Elstree.

Jan. 14.—Scottish (Western) Gas Salesmen's Circle: "Industrial Uses of Gas," A. Bujnowski (Glasgow).

Jan. 15.—British Gas Council: Industrial Gas Development Committee, Gas Industry House, 2.30 p.m.

Jan. 16.—Scottish Junior Gas Association (Eastern District): "Instruments," Mr. Lees (Negretti and Zambra, Ltd.). Edinburgh.

Jan. 16.—Scottish Junior Gas Association (Western District): Paper by D. D. Burns (Glasgow) on a financial subject. Royal Technical College, Glasgow.

Jan. 17.—Yorkshire Junior Gas Association: Short Paper Meeting, Huddersfield.

Jan. 17.—South Western District Gas Salesmen's Circle: "Radiant Heating," H. E. Robinson (Radiant Heating, Ltd.), Bridgwater.

Jan. 17.—South-Western District Salesmen's Circle: "Space Heating by Gas and Space Heating Equipment," H. E. Robinson Radiant Heating, Ltd., Bridgwater, 2.30 p.m.

Jan. 19.—London and Counties Coke Association: Finance Committee 11 a.m., Executive Committee 11.30 a.m., Central Committee, 1.30 p.m., Gas Industry House.

Jan. 20.—Midland Junior Gas Association: "Repair and Maintenance of Gas Fired Furnaces," L. V. S. Mann (Birmingham).

Jan. 20.—Wales and Monmouthshire Junior Gas Association: Visit to works of Porthcawl Gas Department; address by H. Short.

Jan. 20.—National Federation of Gas Coke Associations: National Technical Committee, Gas Industry House, 11 a.m.

Jan. 20.—Solid Smokeless Fuels Federation: Technical Committee, Gas Industry House, 2.45 p.m.

Jan. 20.—Home Counties Gas Salesmen's Circle (Western Area): "Survey for Salesmen," R. J. Gregg, Sales Manager, Ascot Gas Water Heaters, Ltd., Reading, 7 p.m.

CUT IN PAPER FOR CIRCULARS

The Board of Trade has issued the Control of Paper (No. 84) (Economy) Order, 1947, S. R. & O. 2717, which reduces the quantity of advertising circulars (other than advertising circulars in connexion with pool betting schemes or theatre circulars) which may be distributed free of charge in any period of three consecutive months from 20% to 10% of the weight of such circulars distributed free of charge in the corresponding period of three months in the year which ended on Aug. 31, 1939. Copies of the Order, which came into force on Jan. 1, may be obtained from the Stationery Office or through any bookseller.

This restriction is caused by the increasing need for economy in the use of paper. The maintenance of paper supplies even at the present level is, moreover, dependent on the ultimate recovery by salvage of a volume of waste paper representing an adequate return on the present consumption. Any paper which cannot be re-used must therefore still be saved for salvage and re-pulping.

"Aspects of Distribution Work"

Two corrections are needed in the abstract in the "JOURNAL" of Dec. 24 last of the Paper by Colonel J. A. Gould, "Some Aspects of Gas Distribution Work," which he read to the Southern Association of Gas Engineers and Managers (Eastern District) on Nov. 27.

In Table 2 on page 681, "Particulars of Tests on Transmission Mains," the last column should be headed "Coefficient of Friction" and not "Reynold's Criterion." The values of Reynold's Criterion are shown in the column immediately preceding this.

The other correction required is on page 686, where in replying to Mr. Shann's contribution to the discussion, Colonel Gould is reported as saying "We do not support other undertakers' mains by the methods shown in the paper." Actually in his written reply the author stated that "We *do* support such mains by the methods described."

INDUSTRIAL TEN

The Board of Trade announces that the "Industrial Ten" clothing coupons supplement will be issued during the current rationing period. Employers should obtain application forms immediately for their workpeople from the local office of the Ministry of Labour. Applications should not be made by telephone. The extra coupons will be issued to most manual workers in industry and agriculture, and the eligible jobs are very much the same as last year. The only important change in the scheme is that the number of hours to be worked each week in order to qualify will be reduced this year from 22 to 20.

The procedure for obtaining the coupons is the same as before; application should be made to the local offices of the Ministry of Labour as soon as possible. It is important that early application should be made, as the local offices of the Ministry of Labour are busy, and it is in everyone's best interest that the coupons should be issued before the end of February. Posters showing the list of eligible jobs and how to obtain the extra coupons have been issued to works and factories and can be seen at the local offices of the Ministry of Labour.

A happy group taken on the occasion of the Staff Party of Parkinson and Cowan (Gas Meters), Ltd., in London: Our exclusive photograph shows left to right, Messrs. C. H. Pearson, A. Gordon, R. J. Rogers, W. L. Hurdman and E. L. Cowan

YORKSHIRE'S NEW REGIONAL OFFICES

The new regional offices for the Gas Industry organizations in Yorkshire, comprising the British Gas Council, Federation of Gas Employers (Yorkshire W.R. District), the Yorkshire (West Riding) Regional Gas Industrial Council, the Yorkshire Gas Coke Association, and the Yorkshire Commercial Section of the Manchester District Association of Gas Engineers, at Guildford Chambers, 111, The Headrow, Leeds, 1, were formally opened on Dec. 16 by Mr. C. S. Shapley (Leeds) in the presence of arepresentative gathering of district gas engineers.

Mr. G. E. Currier, M.B.E. (Bradford), who presided, said it was an important day in the history of the gas organizations in Yorkshire, as many members of the Yorkshire District had wanted to see a central office organization established in Leeds for a number of years. The new premises were conducive to efficiency and progress, and offered ideal accommodation for the frequent meetings of the Associations. He paid especial tribute to Messrs. C. S. Shapley, H. E. Bloor, J. E. Lister Cooper, A. L. Jennings, and others for their untiring efforts in pursuit of this policy of a central organization and said that no-one was more fitted for the honour of opening the new offices than that stalwart of the Yorkshire District, Mr. Shapley.

Mr. C. S. Shapley said that many years ago it was felt that a central office organization for the Gas Industry organizations in Yorkshire was necessary, but, unfortunately, at that time, financial aid was not sufficient for the scheme to be accomplished. He was proud of the enthusiasm of the members of the Gas Industry in Yorkshire, and said he would never forget the unsurpassable support he received from the Yorkshire District in 1929 when he was President of the Institution of Gas Engineers. With the ideal accommodation now provided, Mr. Shapley hoped this enthusiasm would increase, and said that it gave him the greatest pleasure to open the new offices.

A vote of thanks to Mr. Shapley was proposed by Mr. H. Singleton (Huddersfield) and seconded by Mr. N. Hudson (Mirfield).

The occasion was marked by a dinner at the Guildford Hotel, Leeds.

JUNIOR ACTIVITIES

The December issue of "GAS" records the recent activities of six of the Junior Gas Associations and includes a number of communications to which we have already made editorial reference in the "JOURNAL." Most of them, particularly those dealing with cooling operations in gas-works practice, and carbonization and the chemical industry, are well worth more extended study.

Open Discussion

The first ordinary meeting of the session of the Yorkshire Junior Gas Association was an "Open Discussion" session at Harrogate on Nov. 22. The questions received had been grouped by the President, Mr. W. T. Hird, under four headings: manufacture, distribution, industrial utilization, and domestic utilization, and the discussion on each group was opened by an expert in that particular field.

Visits

The issue includes reports of the visit of the Western Junior Gas Association to the Locomotive Works of the Great Western Railway at Swindon on Nov. 26; the visit of the London and Southern Junior Gas Association to the works of Thomas Glover & Co., Ltd., and R. & A. Main, Ltd., at Edmonton on Dec. 4 (already illustrated in the "JOURNAL" of Dec. 17); and the visit of the Midland Junior Gas Association to the works of the Austin Motor Company at Longbridge, Birmingham, on Dec. 11.

Carbonization and the Chemical Industry

An unusual address, given by Dr. John R. Campbell, of the Royal Technical College, Glasgow, to the Western District of the Scottish Juniors, deals with "Carbonization and the Chemical Industry." It is an address which must have taxed their powers of understanding, fascinating as was the story which the lecturer told, and masterly the manner in which he touched lightly over the whole complicated field of modern synthetic chemistry. Coal must surely remain the source of practically all our power and heat without which even our organic chemical industry cannot function. Nevertheless his address is a mine of information to those who need a compendious reference to the possibilities of the high temperature treatment of coal.

By-Product Coking

'Some Aspects of By-product Coking" is the subject of a paper by J. V. Drake, Assistant Works Manager, Coke Oven and By-product Plant, of British Benzole and Coal Distillation at Bedwas, to the Wales and Monmouthshire Junior Gas Association. It is significant of the increasing co-operation between the Gas and coke oven Industries that one of the newly-elected members of the coking side should have been asked to give a paper on by-product coking. Most of the paper is taken up by consideration of the general charcteristics of coke ovens and their installation and equipment, but the Author has something to say on the broader aspects of collaboration between the two industries. Necessarily there are differences in outlook and procedure, but together they can make a tremendous contribution to national well-being.

Cooling Operations

The Gas Industry is fortunate in having a number of undertakings whose public spirit impels them to place the results of their researches at the disposal of the Industry as a whole. The Gas Light and Coke Company is one of them; and the London Juniors were privileged to have a paper from Dr. E. Spivey, of the Company's Research Staff, on "Cooling Operations in the Gas-Works"—the type of paper which could be put forward only by a technical man enabled to specialize in the subject for a time and backed by the resources of a great undertaking. Many of the processes and much of the apparatus described by the Author may not be within the reach of the average works, but it is useful to every engineer and highly useful to the student to know where to look for data and comparisons relating to the combination of physical and chemical methods suggested to deal with a difficult series of problems.

An American Visit

In "Informal Notes on an American Visit," presented to a joint meeting of the Eastern and Western Districts of the Scottish Junior Gas Association, J. E. White, of the Newcastle-upon-Tyne and Gateshead Gas Company, gives an account of some of his experiences during a recent private visit to Canada and the United States, and of some of the impressions he gained. During the discussion the Author, replying to a question regarding maintenance of appliances in the States and their general sales methods, said that in America there are no sales of appliances direct by the gas undertakings themselves. Appliances of all kinds are to be found in the stores, and the task of the Gas Industry is to get the best stores to push the sale of gas appliances. Service is given by the stores or by appliance dealers and consumers do not look to the gas undertakings for maintenance. While the standard of maintenance is not perhaps what it should be, the American housewife takes great care of her appliances.

THE SERVICE SIDE

The threshold of 1948 is a time when resolutions for the New Year are well to the fore. In this regard our contemporary "GAS SERVICE," is no exception, and its plans for the future indicate a renewed desire to represent as fully as possible the service side of the Industry, in the multiple guise of prophet, recorder, historian, and instructor. To this end its frontiers have been extended to include more fully the industrial aspect of distribution work and instruction for the student of gas supply, while its plans would not be complete without a proper regard to the proceedings of the various Salesmen's Circles. In appearance there are some changes which it is hoped will meet with approval, and to further stimulate interest; we outline here a few of the features of the January issue.

The Circles

It is to be hoped that the New Year will break some of the shackles binding the unfortunate salesman in his present state of frustration. "Selling in Reverse," as it is glibly called, is all very well for a certain period, but it cannot exist for very long without threatening the capabilities of the salesman, and the possibilities of fuel cuts, the continued shortages of raw materials, and the iron grip of excessive taxation do little to give him encouragement. Nevertheless, to ensure success when conditions ease, the Industry looks to the salesman to keep himself *au fait* with present conditions and to improve his technical knowledge and understanding of the Industry. In this regard the Salesmen's Circles serve a valuable purpose, and by their continued keenness and determination to produce papers of genuine value on new aspects of their work, the Gas Industry will have much to gain. This is the gist of the editorial notes in "GAS SERVICE" which give many suggestions as to the lines of investigation that may be profitably pursued, and a call to the Circles to continue to play their part.

To judge by the quality of the papers appearing in the January issue of "GAS SERVICE," there is no sign of deterioration. Of the five papers represented, three are Chairman's addresses and each conveniently deals with a different aspect of gas service. Mr. F. J. Moore, in his address to the South Western Circle, has much to say on sales policy, the status of senior salesmen, and how the new training schemes and salary scales for salesmen affect the men who have years of service to their credit. On the other hand, Mr. T. E. Tyrrell, Chairman of the South Wales and Monmouthshire Circle, is concerned primarily with appliances, and appeals for price standardization and a link via the salesman between the manufacturer and the consumer to pass on constructive criticism. A closer approach to gas fitting is taken by Mr. H. R. Stanley, who gave the Eastern Counties Circle (Eastern District) something to discuss when he suggested increased use of powered machines in fitting practice and put forward a plea for the meter regulator to oust the appliance governor. Special mention must be made of Mr. A. N. Harding's paper to the Home Counties Circle (Western Area) on the subject of local authorities which contains much of interest to those gas men who have grappled with this complex structure. The title "Neat Gas Appliances" is self-explanatory and Mr. Leslie C. H. Athill in his address to the Home Counties (Western) Circle describes their evolution, peculiarities, performance, and maintenance.

The use of permeable bricks as linings in furnace construction is a comparatively new development and one which possesses considerable advantages. We have little doubt that the illustrated extract from the paper by Mr. A. C. Jennings, Engineer-in-Charge, Sheffield and District Industrial Gas Development Centre, which outlines these advantages, togther with the possible snags, will be appreciated.

Exhibitions are the fashion, and the Industry's appearance at these functions is as virile and effective as ever. An important prop in the business of display, the exhibition has always had its place in "GAS SERVICE" and has generally yielded something of value to readers. Most important of recent exhibitions is the very effective "Publicity Parade," held in the entrance hall of Gas Industry House and describing the service offered to undertakings by the B.G.C. This is dealt with in some detail and with numerous illustrations in the belief that it is not only a first-class example of the display man's art but a story of the greatest importance. Other exhibitions featured include the Building Exhibition, 300 Years of Catering, and local exhibits by various undertakings.

For the rest, the third instalment of "The American Commercial Kitchen," a series of abstracts based upon lectures given at the American Gas Association's Commercial School, Washington, the well-known "A Woman's Viewpoint," and a number of topical photographs and news items—not forgetting a diary of Circle meetings—makes this an issue which, we feel, helps us in many ways to face the New Year with confidence.

An Inter-Departmental Committee has been appointed in Eire to enquire into and advise upon provisions for safety in the manufacture, transport, and storage of compressed gases, explosives, and other dangerous substances. Mr. J. Ingram, B.E., has been appointed Chairman, and Mr. W. J. Barrett, B.Sc., of the Department of Industry and Commerce, Secretary. The offices of the committee are at 14, St. Andrew Street, Dublin.

THE RUHR GAS SYSTEM

(*A "Gas Journal" Abstract Translation from GAS-UND WASSERFACH*)

IN a recent issue of "G.W.F." is an account of the development and present state of the Ruhr Gas System by **Carl Scheumann**, of Essen. In the course of the article the author says:

Just over 20 years ago Germany's Gas Industry had reached a crucial stage of its development. War effects (strain on plant and lack of repair) had not been overcome during the French occupation. But when, with the return of more normal conditions, deficiencies were rectified, the latest technical developments were introduced. Among them were improved compound batteries which produced for use considerably more gas than before. Also, for administrative and technical reasons, one central coking plant replaced numerous small plants. These measures quickly made abundant gas available in the Ruhr. In addition to domestic and commercial consumers, industry was beginning to use gas on a large scale; and to satisfy this new and growing demand the coal mining industry founded the Joint Stock Company for Coal Utilization—later the Ruhrgas Joint Stock Company.

Utilization of "rich" gas from coke ovens was not new, for even before the 1914-18 war installations for long distance gas transmission had been set up at coal mines; but these installations hardly extended beyond the Ruhr district; the output of independent gas companies was 12 times as great. The Joint Stock Company for Coal Utilization drew up a plan according to which a great deal more coke oven gas than before was to be made available within a year. It was to be fed through steel pipelines over a wide area; hence the inception of one vast network of all technically and economically sound gas producing plants. In the Ruhr, crude coke oven gas was to feed a pipeline between Hamborn and Hamm, to be purified at these two points before being distributed to the area.

This bold idea met with objections, mainly two: On technical grounds it was feared that with such a large number of supply mines it would not be possible to keep the gas quality sufficiently constant, and in the event of miners' strikes or faults in the pipelines there was inadequate guarantee of supply. On economic grounds it was feared that the mining industry would, with an increasing predominance of coke oven gas, soon become something of a monopoly. Actual development, however, proved the weakness of these objections. The quality of "Ruhrgas" has, both in heating capacity and purity, been maintained at an equable standard, except during the last months of the last war and in the present post-war period when most other industries have suffered setbacks. Even under the most difficult war conditions, any breakdown in the pipeline network was mended in a very short time, often within a few hours, during which period urgent gas requirements could be met from the content of the high pressure pipes and from gasholders. As to the possibility of strikes, it was argued these would affect the production of gas-works no less than that of the coking ovens.

A monopolized coal mining industry might have manifested itself in the fixing of a ratio between the price of gas and that of coal. This has not been the case in the past; in fact industrial consumers have, with the long distance supply, paid unprecedented prices for gas. Change of ownership in the mining industry and an increased interest of the State in all fuel questions diminish the likelihood of a future monopoly of the coal mining industry. Apart from that, there is, as before, a strong rivalry between gas and other fuel interests. Statistics bear out that municipal gas-works in the Rhineland and Westphalia have recognized the advantages of the long-distance gas system. In 1927 50% of them produced their own gas; by 1942 only 25%.

To-day the Ruhrgas Company supplies gas as far east as Berlin, in the south beyond Frankfurt, and in the south-west of the Saar. West of the Rhine the lines are owned jointly with the Thyssen Gas and Water Works. An important difference between the existing state of affairs and the original plan is that the cleaning and condensing of the gas is carried out not at a few centres; each coke oven plant supplies cleaned gas at sufficient pressure for long-distance transmission. Only the gas for Frankfurt passes through an additional condensing station near Siegen.

Extension of this network went hand in hand with a steadily rising demand for gas. To-day *circa* 50 coke oven plants supply the gas for distribution. Organization of such a comprehensive gas supply network is unequalled in Europe.

Experienced repair teams are posted all over the supply area with special vehicles and the necessary spare parts. All points can intercommunicate by telephone through a central station, Essen, and here gas pressure at all important coking ovens can be measured.

The war tested the Ruhr gas organization severely. First, all gasholders were, for safety, put out of action, but later they were partially brought into operation, with certain precautions. With few exceptions, holders were bombed. Untiring repair work and an organized system of load shedding kept the long-distance distribution going till the autumn of 1944, till which time, in spite of the war, gas production of the Ruhrgas Company had increased. At the end of the war, long-distance distribution had almost ceased. Repair of the pipelines was the first task. This was made particularly difficult through the destruction, towards the end of the war, of about 40 bridges with attached gas pipelines. Hard work restored the gas network during the course of a year, by the spring of 1946. Owing to shortage of cables and electrical equipment the telephone and pressure recording systems have not reached the required standard yet, and figures that were read off automatically before have to be transmitted by radio.

Although to-day all Ruhrgas plants are working again and send out comparatively large amounts of gas considering the economic depression, much has yet to be done to remedy war damage.

Because the future of Germany is unsettled, the future of the Gas Industry also is still in the dark, but it is certain that co-operation between the Gas Industry and all branches of the coal industry will continue, and it is likely that the chemical industry will be drawn into this circle. Much is to be said for the continued long-distance supply of gas, especially because of enormous savings in general transport. A political division of Germany would have disastrous effects on the continued development of this scheme. A Law passed in 1935 put Germany's power supply under State supervision; and this is likely to increase. Here bureaucratic forms of control should be avoided. Private enterprise has proved its worth in establishing a supply system without which a Gas Industry is hardly thinkable.

A Group snapped by our Staff Photographer at the Christmas Party of Parkinson and Cowan (Gas Meters) Ltd., on December 16.

THE PRICE OF COAL — THE CASE FOR THE CUSTOMER

By COMMANDER HYDE C. BURTON, F.C.A.

TO-DAY, a small gas company on the South Coast is paying 70s. 7½d. for sea-borne coal, compared with a pre-war price of 30s. 8d. Is it any wonder that the cost of living index is so high when the price of coal is so exorbitant?

In the years before the war, when the people really owned the coal mines, when ownership was divided among one million of the adult population, when, under competitive free enterprise the mines were run for the benefit of the community, any single purchaser of coal could buy whatever type of coal he wanted at a reasonable price and in any quantity. Industry knew where it stood, and so did the Common Man.

In those days, Lord Hyndley, then the head of a prosperous firm of coal merchants, would visit me in my office to solicit my custom for further purchases of coal. "Now, Sir," he would say to me, "I have come to talk about next year's coal. I can offer you for your companies a two-years' supply, say 450,000 tons, of the three or four different types and qualities you like, all at 2d. per ton above the existing contract figure. At the same time we have been able to negotiate a favourable freight rate at 3d. below last year's figure, so the net result will be 1d. per ton reduction for your new supply for two years. What do you think of that?"

My reply would be something after this nature: "Lord Hyndley, for many years you and your firm have served my companies, and through them the British public, whom we serve, well and truly. The rates you offer are satisfactory, and I accept with pleasure. As you know, it is of the greatest importance to our many thousands of customers that we can secure for two years an ample supply of raw material of good quality at a fixed price with guaranteed delivery, for it virtually fixes the price of gas for two years, and helps to keep the cost of living stable."

No fuss; no forms; no letters. Just two men in a London office fixing up the sale and purchase of 450,000 tons of coal for the benefit of the man in the street for a period of two years. Yes, those were indeed the days when the people owned the coal mines.

What happens to-day? A vast State monopoly dictating the price of coal because the competitive element has disappeared and the customer, with no appeal, with no remedy, has to pay or go without. No sooner is one increase in price announced, and the meters, scales, gas bills, collection times, of a gas company altered to cater for it, than a further increase is made known. There is little doubt that if the present rate of absenteeism is maintained and wage-rates remain unrelated to production, a further increase in price within six months is a foregone conclusion.

One would have thought that by now the National Union of Mineworkers, the T.U.C., and the miners themselves, would have seen that unless the price of coal is substantially reduced our industrial economy, even our life as a nation, will be completely wrecked. It is not only 230 million tons of coal per annum that we require—it is 230 million tons at something like two-thirds of the price we have to pay to-day.

The measures to procure this are really quite simple. Courage may be necessary to put them into force, but unless the issue is courageously faced we have little hope for survival. *Coal must be produced more cheaply*, and nothing ought to be allowed to stand in the way of that end.

I submit for the consideration of the authorities four steps to be taken:

(1) Re-establishment of freedom of contract, whereby any man who offers himself for a job in a coal mine can be accepted by the N.C.B. whether or not he chooses to become a member of the Union of Mineworkers.

(2) Dismissal of all miners whose voluntary absenteeism exceeds 1% of their standard time unless a minimum quota is produced.

(3) Reduction of miners' free coal to an amount equal to the domestic consumers' ration.

(4) Establishment of a generous bonus system on production per shift. In the last few weeks William Williams, of Aberfan, Merthyr Tydfil, produced 148 tons of coal in four 7½ hour shifts, and Edwin Greenslade produced 145 tons in nearly six shifts at another pit. Both these men were, no doubt, provided with the best equipment and were presumably working under the best conditions, but their magnificent achievement shows what can be done if there is the will and the stimulus to do it. I venture to hope that they were properly rewarded on a piecework basis; each should be entitled to receive on his earnings not less than £70 for his week's work.

My submission therefore is that the functional head of each pit should establish a basic minimum rate of production per shift, with premium bonuses for every cwt. of coal produced above that rate. Overtime would be abolished, and provided each man produced his quota of, say, 20 tons in any number of shifts up to five consecutive shifts, he would be allowed to stand off for the rest of the week when he pleased, by signifying his desire to do so. Alternatively, any man wishing to earn big money would be allowed to work for as long as he pleased.

Only by some such scheme as this can the present restrictions on output be overcome. The subjoined table furnishes an example of the proposal.

Production per shift cwt.	Production of Coal. Rate per cwt.	Bonus Plan Total pick-up per shift £ s. d.	Cost of coal per ton s. d.
? 60 (minimum)		1 10 0 (minimum)	10 0
Next 20	6d.	2 0 0	10 0
Next 20	7d.	2 11 8	10 4
Next 20	8d.	3 5 0	10 10
Next 20	9d.	4 0 0	11 5
Next 20	10d.	4 16 8	12 1
Next 20	11d.	5 15 0	12 9
Next 20	1s. 0d.	6 15 0	13 6
All above	1s. 6d.		

The increasing direct cost per cwt. would be more than compensated for by the savings in overhead and indirect costs. Assuming a standard minimum quota of 3 tons per shift, and five shifts per week, the minimum basic wage on the above scale would work out at £7 10s. per week. An average of 6 tons per shift would earn a wage of £16 5s. in a week; an average of 10 tons per shift, £33 15s. per week.

It would also be necessary to establish a minimum production from each pit per week to ensure optimum target. A quota of 20 tons in five, or less, shifts would entitle any man who so desired to absent himself for the remainder of the week's shifts.

DEVONSHIRE LIGNITE ENTERPRISE

Addressing the Natural History Society at Torquay, Mr. C. W. Parish, Chairman of British Lignite Products, Ltd., gave some interesting details regarding that Devonshire enterprise. He said the Company found an old lignite pit in the Bovey Tracey basin, which had been excavated a century previously, and on its north west side abandoned motor car bodies, worn out tyres, and broken pottery and all kinds of debris presented a hideous spectacle. When the Company began opencast methods of winning the lignite it emptied the pit of water and filled it in. Moving from one operation to another, waste would be used to cover the excavations, and he assured his hearers that when the work was completed the countryside would be left a great deal tidier than it was before they began. He promised there would be no "Matterhorns" or pointed peaks, but that they would leave rounded contours which would fit in with the Dartmoor background. In due course re-afforestation would be undertaken by Dartington Hall.

There were approximately 400 million tons of lignite in the Bovey basin, which extended from just south of Bovey Tracey to beyond Newton Abbot, an area about six miles in length and four in width. Operations at present were confined to the north west corner, where there were reserves thought to be about 50 million tons. If lignite were to be used to the best advantage it must be clean; the adherent clay must be removed. From the fuel angle there was as much as 30% ash, and that had to be reduced by washing. Recently he watched experiments which had been made at Newcastle-on-Tyne, where about 100 tons of Bovey lignite were treated in an up-to-date washing plant and the ash content reduced to about 10%. Referring to chemical exploitation, Mr. Parish said the first extract in which they hoped to become interested was that of montan wax, which was used to insulate cables, in polishes, and in other ways. Before the war Germany and Czechoslovakia had a monopoly of that wax, and although the Bovey content was much lower than that in German and Czechoslovak deposits, the Company hoped to have a plant for the extraction of montan wax in use by next summer. He also spoke of other possible by-products, including a special type of coke, which might be used as activated carbon.

Speaking of the possibilities of lignite as fuel Mr. Parish said a briquetting plant was awaiting erection at the mine. It had originally been the Company's intention not to do anything until lignite in briquettes was ready for marketing, but when the fuel crisis really began in November, 1946, the Torquay firm of Messrs. Renwick, Wilton, and Dobson asked to be allowed to market raw lignite as an emergency fuel in order to relieve the coal position. The Company agreed that that should be done, and in November, 1946, 12 tons were sold. Sales in 1947 had exceeded 60,000 tons. When the plant obtained for the purpose was installed lignite in briquette form would have its moisture considerably reduced and its burning capacity increased by the use of coal tar as a binder.

SULPHATE OF AMMONIA AND FOOD PRODUCTION

WORK OF THE BRITISH FEDERATION

IN their 27th annual report, the Council and Executive Committee of the British Sulphate of Ammonia Federation record that the world demand for fertilizer nitrogen is still greatly in excess of the supply available. The International Emergency Food Committee in Washington continued to be responsible for apportioning supplies of nitrogen, phosphates, and potash between consuming countries for 1946-47, but for 1947-48 this procedure has applied only to nitrogen.

The following estimates of world production and consumption of fixed nitrogen, which are expressed in thousands of metric tons of pure nitrogen for "Fertilizer Years" ending June 30, are based on the published information available. The figures for 1945-46 in last year's report have been amended where necessary. No figures for U.S.S.R. are included.

Production and Consumption

	1946-47		1945-46†		1938-39	
	Production	Consumption	Production	Consumption	Production	Consumption
Europe* ...	1,208.5	1,338.5	762.5	886.5	1,833	1,692
Asia	197	341.5	88	133	524.5	566.5
Africa ...	18	79	—	59	9.5	106.5
Oceania ...	6.5	17	4	15	5.5	18
America ...	1,410	1,054	913.5	682	590.5	492.5
World total	2,840	2,830	1,768	1,775.5	2,963	2,875.5

* Including Russian Zone of Germany.
† 1945-46 figures relate to Fertilizer N. only.

The figures in the following table show that the total home production of ammonia products in 1946 was about 4% higher than in 1945. Fertilizer products increased by 5%, but industrial products fell by about 4½%.

Production of Ammonia Products and of Ammonium Sulphate in the British Isles
(Tons of 2,240 lb.)

Calendar year	Ammonia products, basis 25% ammonia (about 20.6% nitrogen) Gt. Britain and Ireland	Included in the total Industrial ammonia products (basis 25% ammonia) About	Sulphate of ammonia as such (actual tons of product) About
1913	423,900	66,000	365,000
1918	423,900	173,000	258,000
1923	441,200	45,500	391,500
1933	693,000	88,500	580,700
1939	772,500	182,700	483,300
1944	1,429,200	154,700	779,500
1945	1,375,600	159,900	760,400
1946	1,430,000	152,500	833,700

The nitrogen content of the sulphate of ammonia averaged 20% in the earlier years and 21% from 1933 onwards.

Statistics relating to home agricultural consumption in the British Isles are as follows:

Fertilizer year	Sulphate of ammonia Tons of 2,240 lb. Total	Sulphate of ammonia 20.6% N.	Total nitrogen Metric tons N. Nitrogen in other forms	Total nitrogen
1913-14	60,000	12,558	12,598	25,156
1918-19	269,000	56,301	3,937	60,238
1923-24	142,400	29,804	7,874	37,678
1930-31	164,200	34,366	10,570	44,936
1938-39	215,537	45,111	23,537	68,648
1943-44	665,280	139,240	43,692	182,932
1945-46	554,792	116,116	50,308	166,424
1946-47	561,500	117,520	48,480	166,000

Home Food Production

During the past year of rather unsettled agricultural conditions the consumption of sulphate of ammonia in Great Britain was maintained at approximately the same level as in the previous year. The unsettled conditions were, to some extent, due to changes in Government agricultural policy and the adjustment of guaranteed prices for crops.

The Government, in mid-autumn, 1946, made a belated and not very successful attempt to increase the wheat acreage. There appeared to be some danger that farmers, particularly in the north and west, were putting their land back into grass at a more rapid rate than was either justified or anticipated. It was believed that this tendency was likely to reduce the demand for sulphate of ammonia. As things turned out, the extremely hard winter followed by flooding in many areas seriously affected autumn-sown cereals. This, coupled with the belated sowing of spring corn, stimulated a large demand for sulphate of ammonia for direct application which continued from early in February to the end of May. Weekly orders during March and April beat previous records and the total sales for direct use were some 10,000 tons higher than in the previous year. This increase was offset by a cut in the supply of sulphate of ammonia for compounding rendered necessary in view of the export commitments undertaken at the behest of the Government.

The official tendency of agricultural policy is towards an increase in output of livestock and livestock products. For this policy to be fully effective under conditions of restricted imports of animal feeding stuffs considerable changes in cropping programmes will be entailed. A policy of greater self-sufficiency on the farm will mean some reduction in the wheat and potato acreage and an increase in the acreage of barley and oats, together with a higher utilization of grass.

With these possibilities before them, Imperial Chemical Industries, Ltd., during the past year have put into operation a programme of investigation which it is believed will produce convincing evidence of the value of sulphate of ammonia in livestock and grass farming. For many years, I.C.I. have endeavoured in numerous ways to expand the use of nitrogen on grassland and to bring about a greater realization of the part that grassland can play in the economy of the farmer and the nation. The extension of the grazing season by early and late applications of sulphate of ammonia to pastures, increasing the output and improving the quality of hay by properly timed applications and methods of conservation such as grass silage and grass drying, have all been investigated and demonstrated over the last decade.

A logical development of the work on grass conservation took place in the form of an experiment in communal grass drying undertaken by the Milk Marketing Board in collaboration with I.C.I. A unit consisting of two dryers in parallel was installed and operated at Thornbury, Gloucestershire, with the object of providing high protein winter feeding stuff for a number of farmers whose acreages would not justify the capital cost of individual grass-drying equipment. In spite of difficulties, the experiment was sufficiently successful to encourage its extension at other centres, and the valuable experience obtained will encourage further development of both grass drying and silage on a contract basis, provided that operations can be mechanized.

While considerable progress has taken place in the last 20 years in the mechanization of arable cropping, little change has occurred in the methods of managing and handling grass in the last century. Increasing interest has been stimulated in the mechanical problems involved in treating grass as an important crop and in the provision of new equipment and the evolution of new methods of handling grass for silage and drying. The value of nitrogen in livestock farming has hitherto been a matter of faith, but the long-term investigation will, it is confidently expected, provide a convincing means of measurement and a firm foundation of knowledge which can be demonstrated and open the way to further expansion in the use of sulphate of ammonia in the home market. These activities in connexion with grassland have not in any way reduced the continuous and successful effort to increase the consumption of sulphate of ammonia on arable crops.

Exports

The total shipments of sulphate of ammonia from the United Kingdom amounted to 247,801 tons against 274,589 tons for 1945-46. During 1946-47 the Board of Trade, in collaboration with the International Emergency Food Committee, continued to allocate tonnages of British sulphate to be shipped to overseas markets.

The Federation has resumed its pre-war research work, the main object of which was the improvement of the quality of sulphate of ammonia. Mr. J. Bell is now in charge of an organization in Billingham designed to help members to solve manufacturing problems. Quarterly reports are issued and circulated and from time to time Mr. Bell and his assistants meet members' technical representatives for the discussion of the various manufacturing problems which arise.

The following are the prices per ton to British farmers, delivered in 6 ton lots to buyer's nearest station for neutral quality 20.6% N. minimum:

	1930-31	1932-33	1937-38 to 1938-39	1939-40	1940-41 to 1945-46	1946-47
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Summer ...	8 17 0	5 5 0	7 3 6	7 3 6	9 11 6	9 12 6
Spring ..	9 10 0	6 10 0	7 14 0	9 6 0	10 2 0	10 3 0

Since 1934-35 summer prices have been increased by 1s. 6d. per ton per month up to the spring price. Since 1940-41 prices to farmers have been "pegged" and producers have received a subsidy on home agricultural sales to cover increases in cost not included in the price. For 1946-47 1s. per ton was added to the price to cover the increase in rail rates.

At June 30, 1947, the British Sulphate of Ammonia Federation had 105 members.

COVENTRY ENTERPRISES

A series of 11 weekly cookery demonstrations and fuel advice lectures under the auspices of the Coventry Gas Department has just been completed. The demonstrations and lectures were held in the central showrooms demonstration hall. One cake baking competition was held in connexion with the series, and the average attendance throughout was 90. In addition, over the past six months, 12 cookery demonstrations and fuel advice lectures have been given to women's organizations throughout the area and at their premises.

In conjunction with the local education authority, a series of lectures on gas manufacture and utilization has been planned to be given to 40 schools, commencing early in the New Year. In connexion with these lectures, supplies of the British Gas Council's gas-works cut-out model are being issued to these schools, and an inter-schools competition has been arranged with final elimination to one model per school, and final judging to be made at some central venue, yet to be agreed. The suggestion was made by the Gas Department and the education authority readily accepted.

EDUCATION FOR INDUSTRY AND COMMERCE

The report of the working party set up last September by Mr. George Tomlinson, Minister of Education, to report on the establishment of a National Council of Technology, has been published (H.M. Stationery Office, price 2d.). It recommends that steps should be taken with as little delay as possible to establish a National Council on Education for Industry and Commerce to advise the Minister on the national policy necessary for the full development of education in this sphere, stating: " At this time, as never before, there is a real need for well-trained craftsmen, technicians, technologists, scientists, research workers and managers. Such training calls for careful and concerted planning and it is evident that a national body is needed to give informed advice in order that development may proceed along sound lines."

It is suggested that the functions of the Council should include the planning of new developments, including national colleges; the expansion of existing facilities; the improvement of accommodation and equipment; the development of research in colleges; the methods of examination and certification of studies; the provision of scholarships and awards; the preparation of reports; and the co-ordination of the work of the Regional Advisory Councils and Regional Academic Boards which have already been set up. It should also maintain contact with industry and commerce and appropriate professional bodies and arrange consultation with the University Grants Committee and other appropriate bodies on matters relating to education of university standard.

The working party recommends that the proposed Council should be composed of representatives of the local education authorities, university institutions, teachers, employers and employees in each of the 10 regions together with a number of persons nominated by the Minister to ensure a proper balance of the various interests. It would be necessary for the Council to appoint a Standing Committee to deal with detailed problems. For matters requiring specialized and expert consideration, Advisory Committees should be appointed to report to the Standing Committee.

CHESHAM GAS COMPANY'S CENTENARY CELEBRATIONS

The Chesham and District Gas Company attained its centenary on Dec. 9. Gas was first turned on to the town of Chesham on Dec. 9, 1847, and it is recorded that on that day 100 lights were lighted and the Town Hall was heated by gas, though it was not until 20 years later that the streets were lighted by gas. In the early days coal was 15s. a ton, but as the railway was not extended to Chesham until 1890 the coal had to be carted from Berkhamsted at an additional cost of 5s. per ton. Electric current was first made available in the town in 1903, but the Gas Company continued to thrive in spite—or because—of competition.

Before the 1939-45 war the Company was faced with the problem of building a new works or finding other sources of supply to meet the growing industrial and domestic demand, and reached a solution by entering into an agreement with the Watford and St. Albans Gas Company for a bulk supply, through an 8 in. steel high pressure main, from Hemel Hempstead, capable of meeting all local demands for many years to come. In 1937 Associated Gas and Water Undertakings took over a controlling interest in the Chesham Company.

In the first year of the Company's activities the amount received for gas sold was £73. In 1843 this source of revenue had increased to £215; to-day it is over £40,000. In 1865 sales of gas had reached about one million cu.ft. By 1870 sales had increased to nearly 2¼ million cu.ft. In 10 years the output jumped to six million cu.ft.; while at the turn of the century sales had increased to nearly 16 million cu.ft. To-day the sales have reached approximately 150 million cu.ft.

When the Company first started the price of gas was fixed at 10s. per 1,000 cu.ft. In the year 1880 the number of consumers had reached 257 and the price had been reduced to 6s. 8d. per 1,000 cu.ft. By 1903 the price had fallen to 3s. 9d., at which low level it remained for a number of years. Four years later 1,000 consumers were on the Company's books. To-day over 4,000 consumers are supplied with gas.

During the first 100 years the Board has known only six Chairmen. The first was Mr. Thomas Nash, Junr., who occupied that position from 1846 to 1889, a period of 43 years. Mr. Nash was succeeded by Mr. Charles Herbert, who was Chairman for nine years. Then from 1889 to 1905 Mr. Francis J. Butcher filled the chair. Next to Mr. Nash in length of service was Mr. George Webb, who was Chairman from 1905 to 1928, a period of 23 years. At his death he was succeeded by Mr. Henry G. Webb, who held the chairmanship until 1937, when he retired in favour of Mr. W. H. Bennett. Eight employees have over 25 years' service to their credit, and in the aggregate a total of 247 years in the employ of the Company. Three of these are pensioners, and five are still serving the Company.

The centenary was celebrated at the annual dinner of the Company's Social Club on Dec. 12, at which Mr. W. H. Bennett, Chairman of the Directors, announced that to mark the occasion the Board had decided that each member of the staff should receive a present equal to one week's pay, with a corresponding present for the pensioners.

Mr. Bennett later presented eight framed long service certificates, illustrated in colour to show the activities of the Gas Industry, to Mr. Jack Simonds, Mr. W. Kingham, Mr. Bert Simonds, Mr. W. Neary, Mr. Albert George Simonds, Mr. A. W. Pool, Mr. F. Batchelor, and Mr. Harold Dwight, all of whom had over 25 years of service with the Company, and some 35 years.

NEWCASTLE COUNCIL TENANTS' PARTY

The Newcastle-upon-Tyne and Gateshead Gas Company has for some time been arranging special talks on domestic equipment for the tenants of the housing authorities in its area of supply. These gatherings have taken the form of a social afternoon at which the Council concerned was represented by its Chairman and members of the Housing Committee.

These functions were not too difficult to arrange since, in the main, the authorities concerned were somewhat small, their new estates numbering something in the region of 100 to 250.

The largest authority, Newcastle Corporation, having some 850 gas-equipped new houses presented a problem inasmuch as their total was spread over estates in various parts of the City, each estate providing what would normally be an audience in itself, and as these development areas are somewhat remote from suitable halls individual treatment was impossible as the Council could not be expected to co-operate in a series of such gatherings, and it will be appreciated that the propaganda value of such meetings are enhanced by having Council representation.

Consideration was given to the possibility of gathering the tenants together in one effort under one roof and a hall was booked for this purpose in the centre of Newcastle. Letters of invitation were issued to 850 tenants to a " Christmas Party Fare " demonstration. Some indication of the immediate response to this invitation can be gathered from the fact that 37 acceptances were received by 4 p.m. on the same day as the invitations were received by the tenants, and it soon became apparent that the original hall had insufficient accommodation and a much larger hall had to be sought for this purpose.

The Lord Mayor of the City, accompanied by the Lady Mayoress, opened the proceedings, the Lord Mayor being also the Chairman of the Housing Committee.

This function was held in the Grand Assembly Rooms, Barras Bridge, Newcastle, on the evening of Dec. 3, there being an attendance of 500 tenants, the vast majority of whom were very young housewives. The event was regarded as important enough for the B.B.C. to have an observer present during the whole of the evening, and a commentary on the function was broadcast in the Northern News on the following evening. The gathering was quite the most successful undertaken by the Company, and the enthusiasm shown by the audience was remarkable.

GAS CODES OMNIBUS

The British Gas Council has made arrangements to bind in one volume the 10 Codes of Practice dealing with domestic gas installation which have just been published. This omnibus volume will be made available through the Council to member undertakings on specially advantageous terms.

The codes, prepared by a committee convened by the Institution of Gas Engineers on behalf of the Codes of Practice Committee set up by the Ministry of Works, provide the best available guidance for the selection and installation of materials and appliances to be used in equipping dwellings with gas apparatus. They cover: gas installation pipes, service pipes, cooking, hot water supply, refrigeration, home laundry, space heating, flues, lighting, gas metering, and consumers' control.

UNIVERSITY OF LEEDS

We have received details of the programme of special courses which has been arranged in the Fuel Department of Leeds University for the session 1947-48.

A course of 18 lectures divided into four sections will be given during the second term. "Carbonization Within the Gas Industry" will be dealt with by Dr. S. Pexton, Senior Chemical Engineer, Gas Light and Coke Company, and Dr. F. R. Weston, Research Chemist, Gas Light and Coke Company, in eight lectures. "Water Gas" will be covered by Dr. F. J. Dent, Assistant Director of the Gas Research Board; "Gas Purification" by Mr. G. U. Hopton, Research Chemist, Gas Light and Coke Company; "Town Gas—Organic Sulphur Compounds and Combustion Characteristics" by Mr. J. W. Wood, Research Chemist, Joint Research Committee of Leeds University and Gas Research Board; "Refractory Materials" by Dr. J. H. Chesters, D.Sc.Tech., Assistant Director of Research and Development, United Steel Companies, Ltd.; and "Metallurgy" by Mr. E. J. Vaughan, Superintendent Scientist, Naval Ordnance Inspection Department, Bragg Laboratory, Sheffield.

MECHANICAL HANDLING EXHIBITION

With the approval of the Government and the support of leading associations in the industry, a new exhibition—the first national Mechanical Handling Exhibition and Convention—is to be held at Olympia, London, from July 12 to 21, 1948. The exhibition will show how mechanical handling can save labour and speed production, assembly, storage, and transport in every type of industry, and will demonstrate to the world's buyers the efficiency of British-made plant and equipment. The exhibits will include aerial ropeways, conveyors, and elevators; coal, coke, and ash handling plant; cranes, gears and chains, hoists, stackers, pulley blocks, and lifting gear; hand-trucks, power-driven industrial trucks, runways, wagon-tippers, pneumatic handling plant, and all types of accessories.

"Mechanization speeds production . . . spells prosperity" is to be the slogan of the exhibition. Concurrently with it there will be a convention at which papers will be read on various aspects of handling and an industrial film programme. The exhibition is being organized by the Iliffe group journal, *Mechanical Handling*, and the following associations are supporting it: Association of Crane Makers, Foundry Trades' Equipment and Supplies Association, Industrial Truck Manufacturers' Association, Ltd., Materials Handling Export Group, Mechanical Handling Engineers' Association, and Truck and Ladder Manufacturers' Association.

DISTRICT HEATING

The following is an extract from the *Heating and Ventilating Engineer and Journal of Air Conditioning* for December, 1947: "An item of interest was evidence in regard to the Dundee district heating scheme, about which some misleading propaganda has been published. The original weekly charges were 3s. 6d. for a three-roomed flat and 4s. 6d. for a four-roomed flat. In 1945-46 a loss of £5,123 was incurred, despite the withdrawal of the total accumulated reserve (£2,285) and the non-payment of interest on the capital of £45,000 and of local rates. The true loss for the year is evidently in the region of £10,000. Charges have been raised to 5s. 6d. and 6s. 6d., but a substantial loss is nevertheless anticipated in the current year. Bearing in mind that the Dundee schemes do not give full heating so that an open fire is also needed, and comparing the accommodation in the Dundee flats with that in the houses erected in the south, it appears that many of the estimated charges which have been quoted are woefully in error.

"It was stated that the hot water consumption in Dundee was 70 to 80 gall. per flat per day, the estimated figure being 40 gall. Whatever significance may attach to these figures, it is almost astounding that the last proposals of the L.C.C. for Westminster eliminated the supply of hot water entirely, restricting itself to the supply of heat. On many grounds this is surely regrettable.

"This enquiry establishes what has previously been urged—namely, that the engineering of district heating is on known and firm ground. Economics and politics are quite otherwise, but they may in the end be more important. Since local authorities must inevitably be intimately concerned in any district heating which is a public service, the Ministry of Health will be brought in if loan sanction is required. The Ministry of Fuel and Power are interested also, from the aspect of fuel conservation. It would be valuable, therefore, if these two Departments could indicate the policy which they have adopted or will adopt in considering schemes.

"A good deal of the alteration in the L.C.C. Bill was produced by the opposition of the Conjoint Conference of Public Utility Associations. That this possibly obstructive attitude may increase is perhaps to be expected since any real adoption of district heating would materially affect not only the total loads of electricity and gas undertakings, but also the nature and incidence of the loads. Consequent increased charges to householders might need consideration in deciding the real cost of a therm supplied by district heating."

THERMAL EFFICIENCY OF GAS PRODUCERS

On Dec. 3 Dr. A. Dunningham gave a Paper in London to the Institute of Fuel in which he presented the substance of a report issued by an I.C.I. Panel appointed to investigate the thermal efficiency of producers, the means by which these can be increased, and the relative merits of producer gas and coal stoker firing for chemical plant. Trials were carried out with a number of producers of various makes under normal conditions of operation at or near rated capacity. Differences in efficiency are attributed to variations in the method of operation and cannot be used as a basis of comparison between the plants themselves.

It is recommended that the standard expression of efficiency should be based on the net calorific value of the gas because only this can be utilized in practice. The term "bogey efficiency" is calculated from heat losses averaged from accredited observation. Heat lost in carbon in ashes and dust should not exceed 2%. Radiation, convection, and unaccounted-for losses have been taken as 6%. Heat losses in undecomposed steam, excluding water in fuel, range from 1.5% with blast saturation temperature 50° C. to 5.1% with 70° C.; they are calculated with the formula $P = 100\,(a \text{ Œ } x)/=\& \text{ Æ } y)$ where P = percentage of undecomposed water vapour in gas, a = total water vapour in gas, x = free and coherent water in fuel, & = water vapour in blast, y = total Hs in fuel expressed as water, moisture in air supplied to the producer being ignored. The actual percentage of undecomposed steam ranges from 17 to 34. Total heat losses range from 9.5 to 13.1% giving "bogey gross" hot gas efficiencies ranging from 90.5% at blast saturation temperature 50° C. to 86.9 at 70° C. Bogey net hot-gas efficiencies are obtained by deducting heat in water vapour formed by combustion of Hs in the gas. This has been taken as 5% for coal and anthracite and 3% for coke, giving at 55° C., for bituminous coal and anthracite 84.9%, and for coke 86.9%.

Cold-gas efficiencies are lower by the sensible heat of the gas, and the heat of combustion of tar and soot removed in cleaning. These vary widely and cold-gas efficiencies cannot be given unrelated to conditions of operation. "Generally speaking, however, higher cold-gas efficiencies are obtained with the low-volatile coke and anthracite, which do not lead to the formation of tar."

When steam for blast is generated externally, and assuming this is done with an efficiency of 70%, correction factors ranging from 0.991 to 0.965 need to be used.

Results of Seven Trials

Efficiency trials are reported in a comprehensive table. They cover seven trials with bituminous coal, four by the I.C.I., and three quoted from other sources, three with anthracite, all by the I.C.I., and four with coke, three by the I.C.I. and one quoted. A summary shows an average net cold-gas efficiency of 65.4% with coal without sensible heat recovery, and 79.6% with anthracite with heat recovery in jacket. Coke showed 58.9 and 66.0% without heat recovery, 70.2 with preheated air, and 78.4 with jacket, and 5% steam loss, against the quoted result of 75.1% with jacket and boiler, 8.7% being recovered as steam in addition. Hot-gas efficiencies are quite close to the 85% "bogey" in most cases.

The following general conclusions are drawn: (*a*) That for the production of hot gas there is nothing to choose between bituminous coal, anthracite, and coke except that the C.V. of coke-gas is lower; (*b*) that for cold gas, coke and anthracite have a marked advantage over coal.

Sensible heat losses can be reduced by (1) heat exchanged with incoming fuel by working with thick fuel beds; (2) heat recovery in jackets or waste-heat boilers; (3) steam superheaters or air or blast-preheaters fitted to the gas-exit pipe; (4) where gas cooling and cleaning are carried out by water-spray the hot water may be used to the blast. Recuperators for preheating air or blast are preferred to water jackets and waste-heat boilers.

Costs are compared on the basis of coal 40s. per ton, anthracite 72s., coke 60s. Fuel and direct operating costs, exclusive of capital costs, per therm of hot-gas made are 2.89, 3.78, and 3.76 for the three fuels respectively, and for cold gas 3.89, 4.79, and 4.32 (the last calculated) pence per therm. Allowing for capital charges the cost of cold gas per therm using coal is 3.68d. and using coke 3.71d.

Factors affecting relative costs of coal and gas firing are (*a*) distribution costs which favour a central gas producer plant concentrating the handling of fuel and ashes at one point; (*b*) capital costs which, it is suggested, cancel out; (*c*) furnace operating costs which are not widely different for a modern mechanical stoker and a producer plant; (*d*) possibilities of preheat, in which gas has a definite advantage; (*e*) uniformity of temperature and control of atmosphere about which no decision was reached; and (*f*) cleanliness of products of combustion in which producer gas has the advantage in appropriate cases.

The general conclusion is that the cost of a therm in hot producer gas varies from 1.5 to 2.0 times that of a therm in bituminous coal while for cold gas the ratio varies from 2.0 to 2.5, that these ratios hold even with the available term in the case of modern mechanical stokers, and that while it is recognized that in certain processes the use of producer gas is obligatory for technical reasons, it is considered that the extra fuel and other costs which may be involved should be fully realized when producers are preferred to mechanically fired solid fuel.

FACTORS IN THE DESIGN OF PIN-HOLE GAS BURNERS

By R. JESSEL, A.R.C.S., Ph.D., F.Inst. P., A.M.I.E.E.,

and H. R. HINDLEY, B.Sc., F.Inst. P.,

Ascot Gas Water Heaters, Limited

(*Abstract of Communication No. 327 presented at the Autumn Research Meeting of the Institution of Gas Engineers, 1947*)

THE properties of the flames which have been considered are their height, the amount of heat radiated, and the speed with which the flame will run along the tube, jumping from port to port, after the burner has been lit by a pilot flame at the first port. The factors which affect these flame properties are the port diameter, the spacing of the ports, the tube diameter and shape, the gas rate, the air supply, and the gas quality. This paper shows the effect of all except the last of these variables.

The object of the work has been to accumulate data useful to the designers of pin-hole gas burners, so that much trial-and-error work may be obviated.

Experimental Procedure

The Burners.—A burner tube about 7 in. long has been standardized. One end is blank flanged, and gas is fed in at the other. Twelve ports, lying on a straight line, are drilled through the tube wall, with a given port size and spacing. A burner is distinguished by a series of numbers referring to its significant dimensions. Thus, 7/024/5/11(3) refers to a burner made from tubing of 7 mm. external diameter, having a port diameter of 0.024 in.* and a port spacing of 5 mm., the complete burner consisting of 3 parallel bars spaced 11 mm. between centres. When a single bar is used, only the first three number groups (7/024/5) are employed. The port diameter is given in inches because metric drills were not available, but this dimension is only nominal; when it is the significant variable it has been measured by a microscope, and expressed in millimetres.

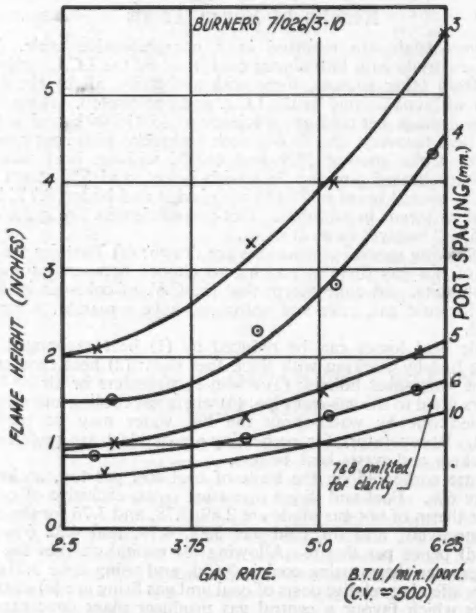


FIG. 1.—*Effect of Gas Rate on L.T.*

The Combustion Chambers.—To standardize the combustion conditions, a combined support and screen was constructed. The burner is held horizontally, midway between vertical sheets of wood and mica 3 in. apart. The sheets are each 6 in. long by 8½ in. high, and the burner is 5¼ in. above the base board holding the wood and mica. The ends and top of the "box" are open, but large surrounding screens which are not an integral part of the apparatus prevent draughts from reaching the burner. When the burners with three bars were used, the combustion chamber was extended upwards by 6 in., in the form of a flue, to promote flame stability; without this flue the flames flickered badly.

In the experiments in which the air supply was controlled, a different combustion chamber was used. Slides at the bottom vary the area of the air inlet ports, and a narrow opening at the top of the chamber prevents extra air entering and mixing with the products of combustion. Samples of these products were drawn through a tube at the top of the chamber, and their carbon dioxide content was measured by a meter of the thermal conductivity type.

Measurement of Flame Height.—A series of horizontal lines, spaced 0.1 in. apart, is drawn inside the back of the combustion chamber, and a similar set on its mica front, the lowest line of each set being level with the top of the burner bar. Parallax errors are thus avoided. Measurements were made of the heights of the inner blue cone, the luminous flame and, when clear enough, the outer envelope.

Radiation Measurement.—The radiation from the flames is measured by a bolometer outfit supplied by the Cambridge Instrument Company and calibrated at the National Physical Laboratory. It gives direct readings of radiation in kilocalories per sq. ft. per hour.† The radiation is measured through the mica front of the draught screen, and correction is made for loss in passing this screen.

A movable screen was added to the apparatus, to prevent radiation from above the top of the flames reaching the bolometer.

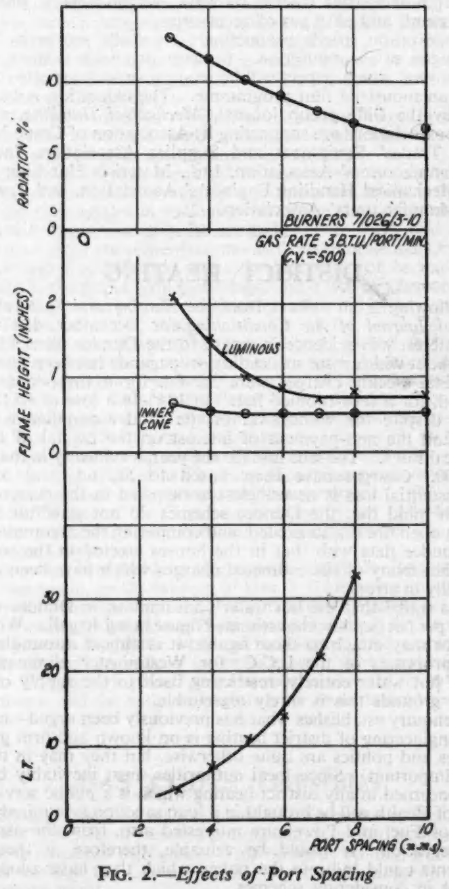


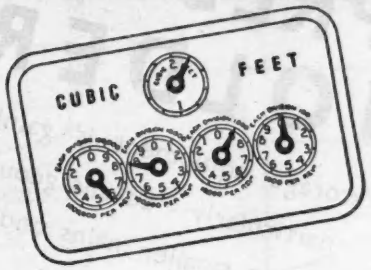
FIG. 2.—*Effects of Port Spacing*

A scanner was constructed so that the bolometer could be pointed at the burner from 36 points situated at the centres of equal areas covering a hemisphere, and it was intended that readings should be taken at each of these points for every variation of burner or gas conditions. Experimental sets of readings showed, however, that movement of the bolometer along a "line of longitude" of the sphere

* 1 in. = 2.54 cm.

† 1 sq. ft. = 0.0929 sq. m.

easy on the Gas



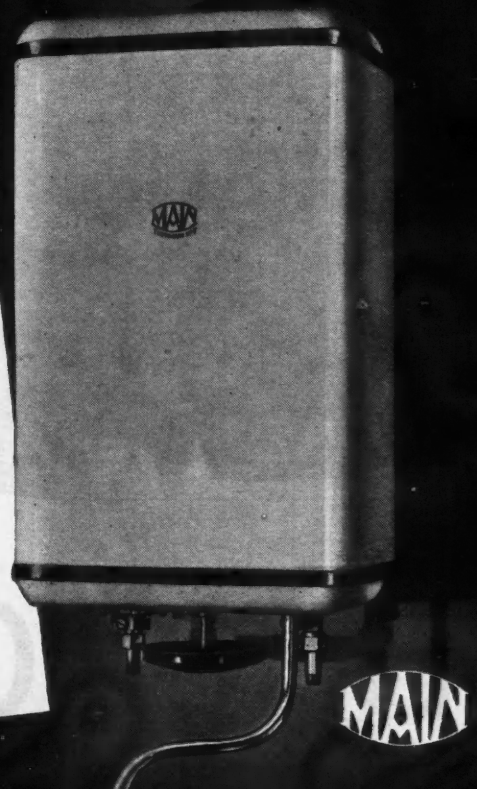
The new Thermain No. 2 is a water heater which in its design and operation anticipates and discounts the effects of the present stringent fuel economy drive, not to mention the threat of future rationing. • Its principal merits, technically, are its rapid heating-up and recovery times—a full two gallons from cold to 140° F. in about 20 minutes—due to its selected gas rate and special thermostat. Its low maintenance consumption—after heating-up, 300/400 B.Th.U./hour — is the result of heavy and effective lagging and its simple and lasting non-condensing heat exchanger. • The control is by the "Flap-Stat," which definitely ensures that gas burns at the full-on rate until the water reaches the desired temperature, at which point, *and not before*, it immediately cuts down the gas to the low maintenance rate. Conversely the gas is again turned to full-on as soon as any water is drawn off. • The new Thermain No. 2 also introduces many important long-life features and has been constructed on a principle of robust simplicity that enables it to be installed, operated, and maintained at surprisingly little cost.

BRIEF DATA

1. Capacity 2 gallons.
2. Full gas-rate, 7,500 B.Th.U. hr.
3. Maintenance temperature 140°.
4. Dimensions, overall height 27¾ in. by 11 in. wide by 8 in. deep.
5. Finished in cream enamel picked out with black.

THE **THERMAIN**

No. 2 sink storage water heater



MAIN WATER HEATERS LTD., GOTHIC WORKS | THORNTON RD., CROYDON.

HIGH PRESSURE GASHOLDERS

This form of gas storage equipment is gaining in popularity, being particularly advantageous for District purposes, requiring smaller mains and having no moving parts and liquid seals.

We invite your enquiries.

One of three holders installed for the Plymouth and Stonehouse Gas Liget & Coke Company, each having a discharge capacity of 50,000 cubic feet, working pressure 100 lb. per square inch.

NEWTON CHAMBERS

NEWTON CHAMBERS & Co. Ltd., THORNCLIFFE, Nr. SHEFFIELD
LONDON OFFICE: GRAND BUILDINGS, TRAFALGAR SQ., LONDON, W.C.2.

of which the burner is the axis produced little change in the bolometer readings, and one position could be taken as representative of the six associated with each line.

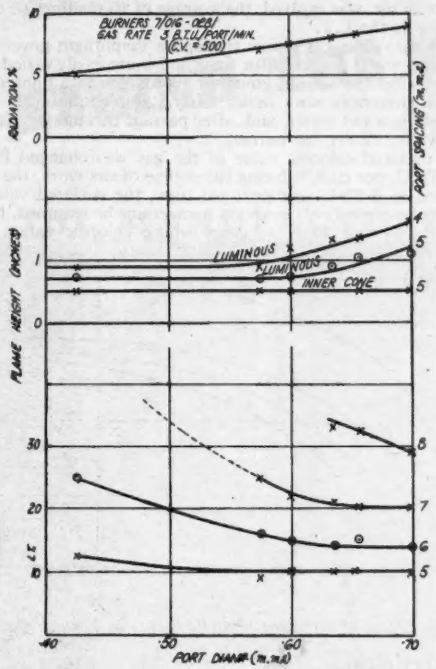


FIG. 3.—*Effects of Port Diameter*

Until the hot gases were screened off there were large variations of radiation, reading along the " lines of latitude," but after the introduction of the screen these disappeared, apart from a slight lack of symmetry due to increased thickness of mica at small angles of incidence, and to the bolometer positions being equidistant from the burner bar and not from the centre of radiation, which is above the bar.

The conclusion reached is, that only one bolometer reading need be taken to calculate the radiation over the whole sphere. This total radiation is expressed as percentage of the theoretical heat input of the gas.

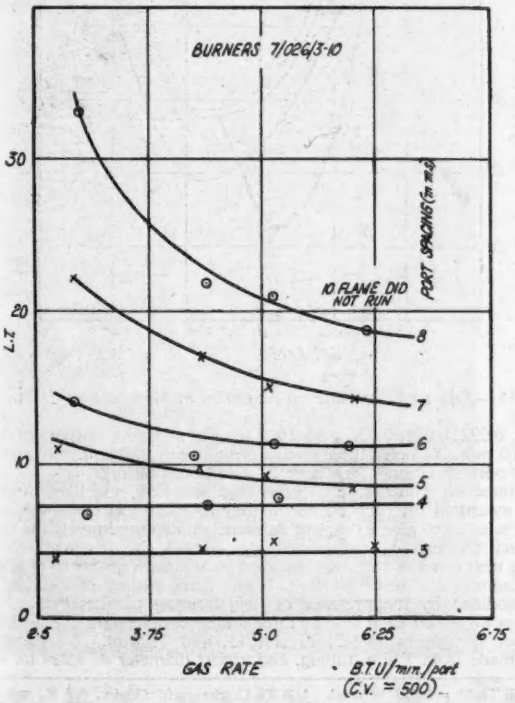


FIG. 4.—*Effect of Gas Rate on the Height of the Luminous Flames*

Lampadedrometer.—The measured property is the rate of run of flame along the burner from one pin-hole to the next, after the gas has been ignited at the first pin-hole by a pilot flame. A word was

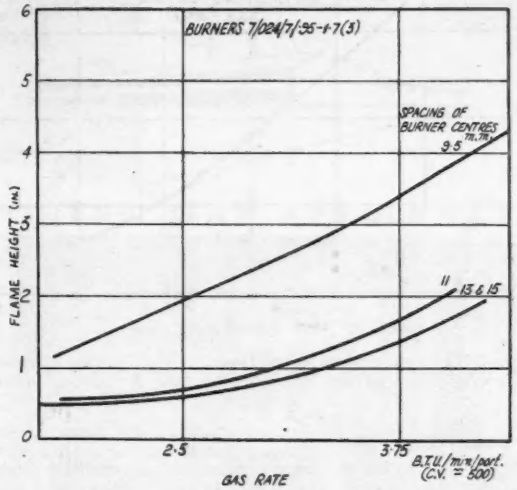


FIG. 5.—*Triple Burner. Effect of Gas Rate on the Height of the Inner Group of Luminous Flames*

wanted to describe these measurements and the apparatus for making them, but it appeared that all the obvious names, such as " ignition speed," had already been used for other phenomena, so the name " Lampadedrometer " has been coined for the apparatus (from the Greek γαμπαδ δρομια, a torch race). From this the " Lampadedromic Time " (L.T.) of a burner is a derivative. It is defined as one-tenth of the time in milli-seconds for the flame to travel from the second port to the twelfth port (*i.e.*, the mean time for the flame to jump from port to port).

The apparatus is entirely automatic in its action; the gas is switched on, and the time (L.T. × 10) is shown on a Venner clock graduated to 0.01 sec.

A platinum wire, 0.002 in. diameter, held horizontally over the second port forms part of one arm of a balanced resistance bridge fed with current from a 500 cycles per sec. oscillator. When the flame impinges on the wire its resistance is increased and the bridge is thrown out of balance. The out-of-balance voltage is amplified, rectified by a diode and fed to the grid of a pentode in such a way that the anode current is suppressed. In the anode circuit of this valve is a P.O. relay which drops out, allowing the secondary contacts

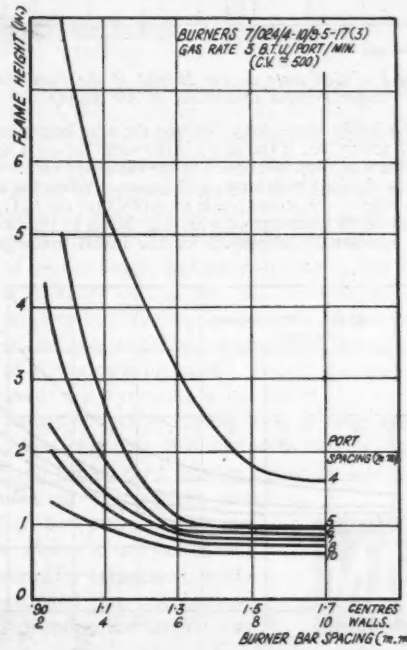


FIG. 6.—*Triple Burner. Effect of Bar Spacing on the Height of the Inner Group of Luminous Flames*

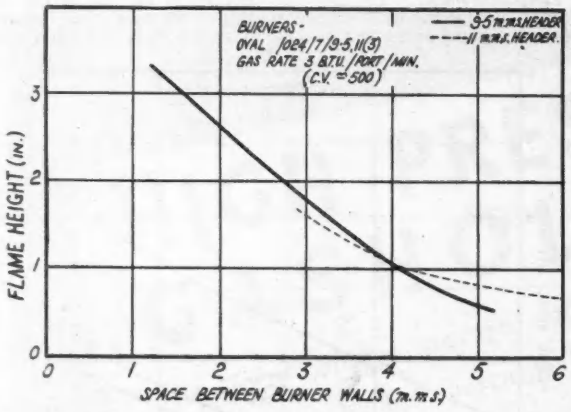

BURNERS - OVAL /024/7/9·5,11(3)
GAS RATE 3 B.T.U./PORT/MIN. (C.V. = 500)
9·5 m.m.s. HEADER
11 m.m.s. HEADER
FLAME HEIGHT (IN.)
SPACE BETWEEN BURNER WALLS (m.m.s.)

FIG. 7.—*Triple Burner with Oval Tubes. Effect of Space between Neighbouring Tubes on the Height of the Inner Group of Luminous Flames*

to close, when the bridge goes out of balance. This starts the clock. Over the twelfth port is a similar platinum wire connected in a second circuit identcial with the first, except that the relay opens its secondary contacts as it drops out. This breaks the clock circuit, and so the clock runs only in the interval between the first heating of the two wires.

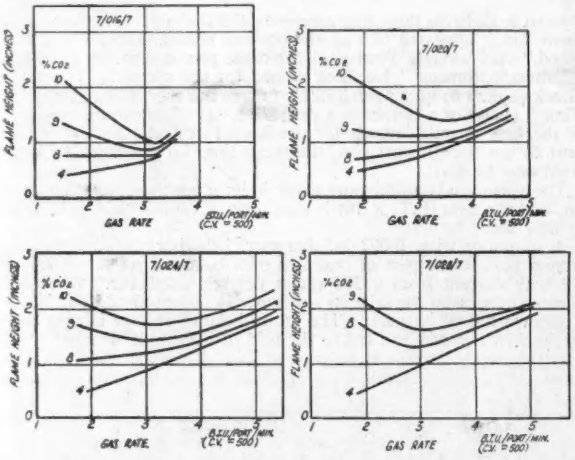


FIG. 8.—*Effect of Gas Rate on the Height of the Luminous Flames under Various Conditions of Air Supply*

There is inevitably some delay between the wire beginning to heat and the relay acting, but if the delay is the same for each half of the circuit no correction need be applied to the measured time. That this is the case was checked by taking oscillograms. When the apparatus was in use a regular check was made to verify that the L.T. as determined from an oscillogram agreed with that shown by the clock. The oscilloscope is normally employed for the initial balancing of the bridges.

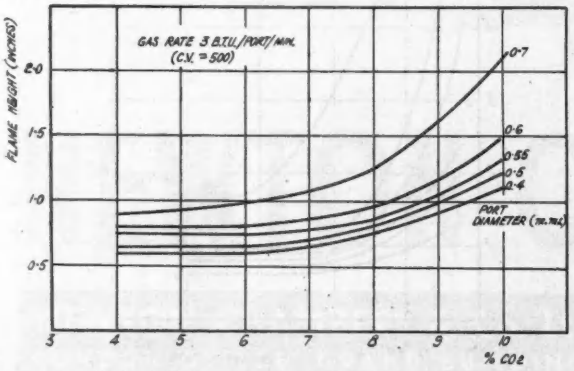


FIG. 9.—*Effect of Air Supply on the Height of the Luminous Flames at Various Port Diameters*

The lampadedrometer results do not repeat very closely even when the apparatus is carefully screened from draughts and the gas is turned on electrically, so a technique of switching the gas on for 2 sec. and off for 28 sec. was evolved, the average of 10 readings so obtained being taken as the L.T.

Gas Control.—The gas passes through a diaphragm governor, and then through a bell governor for finer and more easily varied control. A tee joint after the second governor bleeds gas to a bunsen burner so that the governors work under fairly stable conditions. The gas is measured by a wet meter, and, after passage through an electrically operated valve, enters the burner.

As the declared calorific value of the gas was changed from 500 to 520 B.Th.U. per cu.ft.* during the course of the work, the gas rate is expressed in B.Th.U. per port per min., the declared value being assumed to be correct. It must on no account be assumed, however, that the results will apply to gases whose calorific values fall far outside this range.

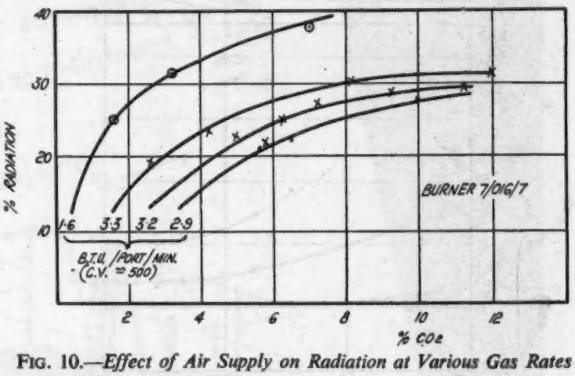


FIG. 10.—*Effect of Air Supply on Radiation at Various Gas Rates*

The Experiments

The first series of experiments was made with single-bar burners in the open-sided combustion chamber, which gives combustion conditions more or less equivalent to free air. Forty-two burners of 7 mm. outside diameter were tested. They consist of the combination of port spacings 3, 4, 5, 6, 7, 8, and 10 mm. with port diameters 0.016,

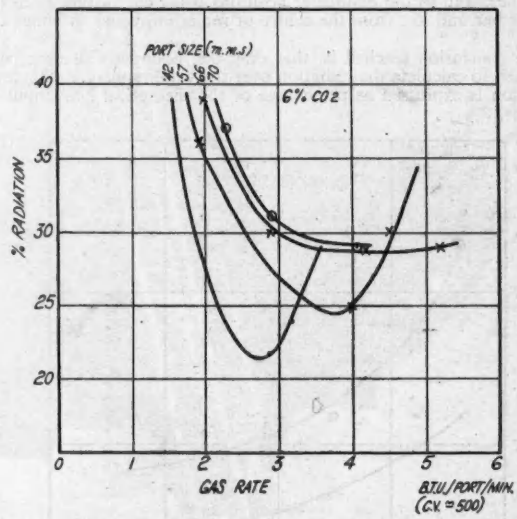


FIG. 11.—*Effect of Gas Rate on Radiation at Various Port Diameters*

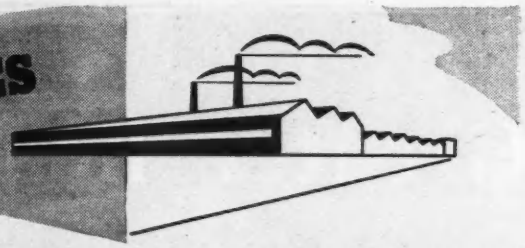
0.020, 0.022, 0.024, 0.026, and 0.028 in. In addition, burners of 6, 8, and 10 mm. diameter tubing were drilled with 0.024 in. ports at all seven port spacings. This gave 21 additional burners.

In these experiments L.T., percentage radiation, and flame heights were measured for each burner at four or more gas rates, the rates being selected to give a range of flame heights approximately the same for each burner.

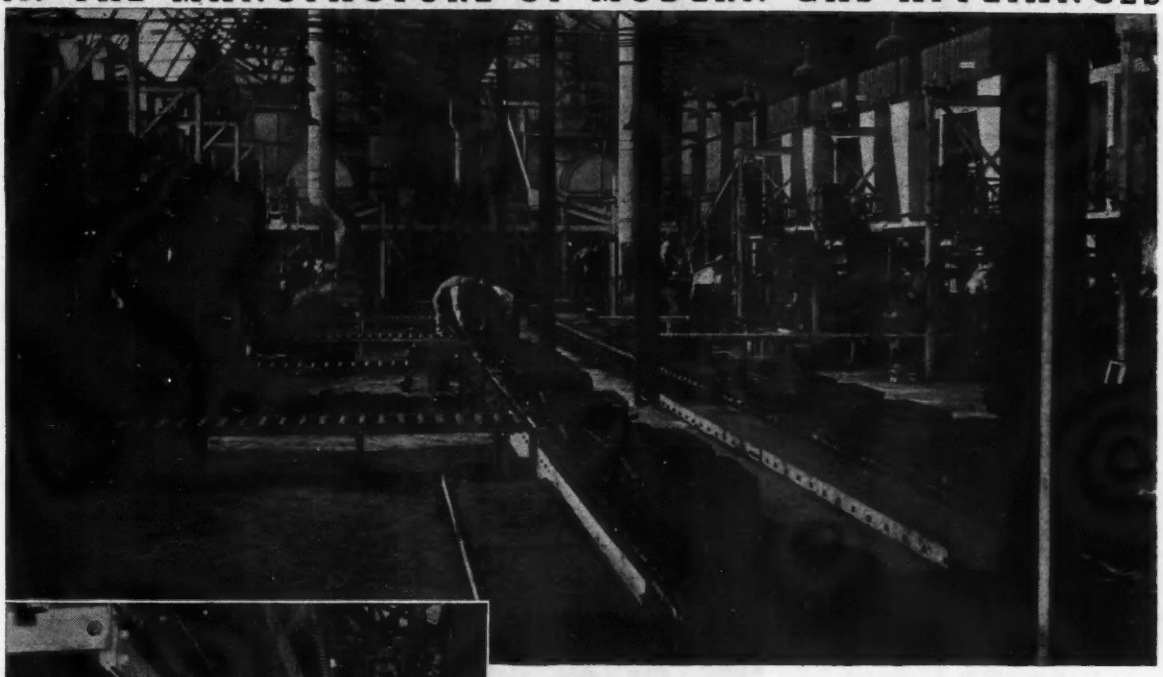
The next series of tests was designed to approach nearer to practical conditions and to test how the L.T. and flame pattern of a single bar are modified by the presence of neighbouring parallel bars. Five headers were used, each holding three similar parallel bars, the distances between centres being 9.5, 11, 13, 15, and 17 mm. All the bars were made from 7 mm. tubing, and a port diameter of 0.024 in. was

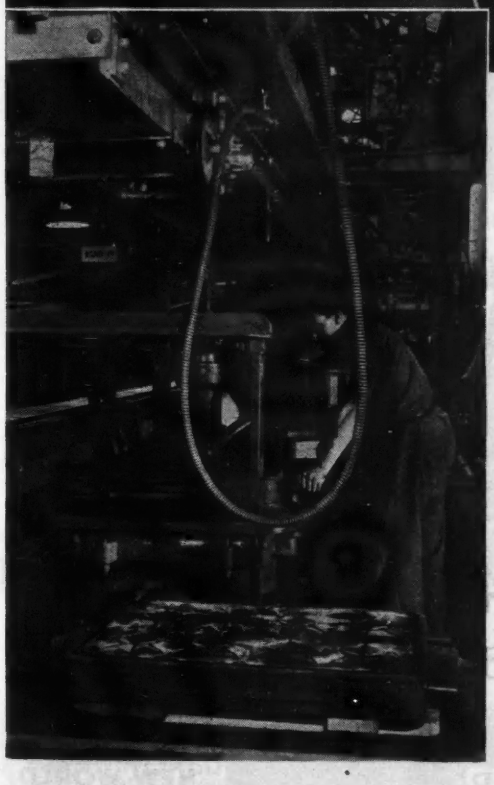
* 1 B.Th.U. = 0.252 kgm. tal. 1 B.Th.U. per cu.ft. (30 in., 60° F., wet) = 8.9 k. cal. per cu.m. (760 mm., 15° C., wet).

BEHIND THE SCENES



IN THE MANUFACTURE OF MODERN GAS APPLIANCES





Mechanised Foundry

The installation of the mechanised foundry is part of a programme of improvement to the manufacturing plants of the Firm. • The mechanised foundry—already planned before the outbreak of war—is helping to solve the increasing demand for castings of all kinds, and to overcome the shortage of skilled moulders. • Whilst mechanical moulding has been known to the industry for a number of years, the mechanised foundry is an advance that has resulted in a higher rate of productivity, economy in labour, and a greater uniformity in the standard of castings. • The illustrations show a high, well-lighted airy building equipped with all the machinery—mills, hoppers, and overhead conveyors—for the mixing and rapid handling of the moulding sand. Along the sides of the foundry are located the hydraulic rams which force the sand tightly into the halves of each moulding box. • After these have been securely locked together the complete box is lifted by a mechanical hoist and placed on a moving conveyor which takes it to the cupolas where the molten iron is "poured." Each box stays on the conveyor to a point where it is ejected, and the castings collected for inspection, whilst the sand is returned to the mixers where it is reconditioned for further use.

MAIN

R. & A. MAIN LIMITED · LONDON & FALKIRK

Greater heat conservation

in the

NEW WORLD No. 1430 Gas Cooker

PRODUCT OF **Radiation Ltd**

Radiation House, Aston, Birmingham, 6

NEW WORLD NEW WORLD NEW WORLD

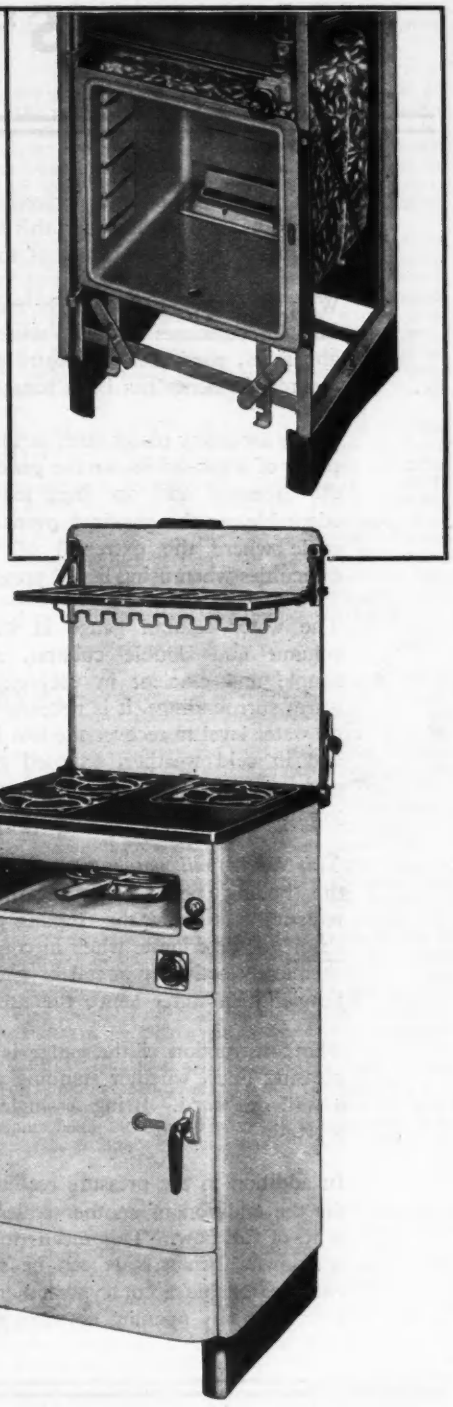
New Air-Float Oven

Two of the ten features which justify the claim that the No. 1430 is the best NEW WORLD Gas Cooker yet produced are the Air-Float Oven and the Spring-Sealed Door.

These combine to increase efficiency and economy by reducing heat leakage to the barest minimum.

The Air-Float Oven is a one-piece unit of vitreous enamelled sheet metal sealed to a cast aluminium alloy front which, in turn, is bolted to the front frame of the Cooker at four points through insulating washers, cantilever-fashion.

The Spring-Sealed Door is fitted with flexible, stainless steel bedding for tightly sealed closure.



10 points of supremacy

1 **Elegant in appearance**
2 **Easy to clean**
3 **Cooks to perfection**
4 **Saves Gas**
* 5 **Air-Float Oven heats quickly**
* 6 **Spring-Sealed Door conserves heat**
7 **Regulo controls oven temperature**
8 **Chassis construction for strength**
9 **Leak-proof Vertico taps**
10 **Easy action platerack and Covertop**

NEW WORLD GAS COOKER

Model No. 1430

PRODUCT OF Radiation Ltd

Showrooms & London Offices : 7 & 8 Stratford Place, W.1.

T.14

NEW WORLD NEW WORLD NEW WORLD

"NO LOSS" PRESSURE GAUGES

The title " No Loss " is derived from the type of liquid that is used as the indicator, and this liquid, covered by patent, is the most important feature of the gauge.

With the growing demand for more accurate control of Gas Plant, sometimes under severe conditions, measuring apparatus, particularly pressure gauges, capable of meeting the requirements has been repeatedly asked for.

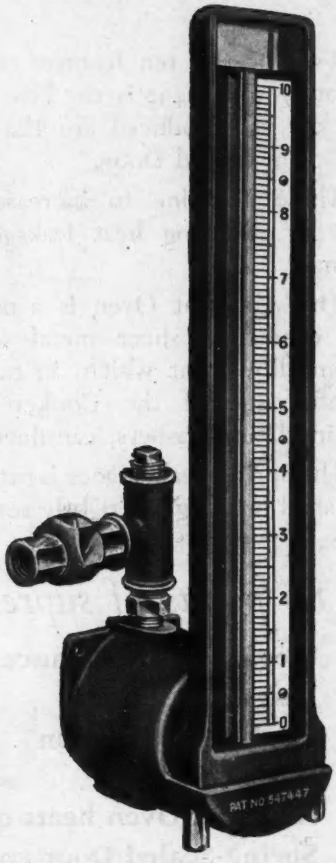
There are many places such as the retort house and exposed plant of a gas-works, or the gas-fired furnaces employed on the thousand and one uses to which gas has proved so adaptable, or the gas-fired ovens used in the confectionery trade where the extremes of temperature give rise to difficulties when using liquid pressure gauges or manometers.

The water column gauge in its two main forms, single column and double column, has proved to be most simple and efficient in use, except for the fact that in warm surroundings, it is necessary to keep a constant check on water level to recover the loss in level due to evaporation, and in cold weather, exposed gauges will freeze up. A gauge which overcomes these difficulties has now been produced by using a special liquid and scale.

This liquid will not evaporate at temperatures well above the boiling point of water neither does it freeze at temperatures below the freezing point of water, it does not absorb or deteriorate when in contact with gas and it is not chemically active on metal or glass. Its density is slightly heavier than water hence the use of a special scale.

The construction of the gauge is simple yet robust and of pleasing lines, whether standing on its base or fastened to a wall or board. Being a single column gauge it is easy to read.

In addition to the pressure reading scale, space is provided for the addition of another scale calibrated to indicate per cent. of full flow. This means that if the full flow pressure is known, then a scale can be supplied that will indicate with reasonable accuracy whether the gas control is set at ¼ or ½ or any opening between shut and full.



No. 492

Prices on application

J. & J. BRADDOCK

PROPRIETORS—METERS LIMITED

OLDHAM
GLOBE METER WORKS
Telephone: MAIN 3815

MORDEN ROAD,
MITCHAM, SURREY
Telephone: MITCHAM 2121

WOLVERHAMPTON
49, ABLOW STREET
Telephone: WOLVERHAMPTON 23189

standardized. Port spacings of 4, 5, 6, 7, 8, and 10 mm. were used, and these six spacings, combined with the five headers, give 30 different three-bar burners.

In addition to these round burners, in order to test whether the distance between centres of parallel bars or the space between their walls was the significant factor, some oval tubes were rolled from 7 mm. tubing. Two different shapes were made, having cross-sections approximately 6 by 8 mm. and 5 by 8 mm. Only 0.024 in. ports at 7 mm. spacing were used in these oval burners. Each shape of oval tube provided two kinds of bar, one with the ports at the end of a major axis, and one with them at the end of a minor axis. These four sets of oval bars, together with the round bars (7/024/7) form five sets which, when mounted in a header, differ only in the gap between one burner and its neighbours.

The open combustion chamber with the stabilizing flue was used for all the experiments with triple burners. The time for the flame to run from the second port of one outer bar of the group (when lit by a pilot over the first port) to the twelfth port of the other outer bar, was measured, as well as the L.T. of the centre bar. Radiation measurements were not made with the triple burners.

The final series of experiments was made to investigate the effect of air supply on the factors under consideration, using single burners in the combustion chamber with shuttered air inlet ports. Port diameters were varied, but the spacing was maintained at 7 mm. and the tube diameter at 7 mm.

Each burner was tested with the shutters in positions giving varying carbon dioxide percentages in the flue gases, the gas rate remaining constant. The experiments were repeated for four or five different gas rates. In this set of experiments the L.T. was not measured, as the air supply and composition of the flue gases are not stabilized until combustion is steady and L.T. is essentially an ignition factor.

The L.T., flame heights, and percentage radiation for each burner were first plotted against gas rate, and their values read off at a selected gas rate of 3 B.Th.U. per port per min. A second set of curves was then plotted for each set of burners, showing how the measured factors vary with port spacing at this gas rate. By reading from this set, still more curves can be drawn showing how the factors vary with port size when port spacing and gas rate are both held constant. The figure of 3 B.Th.U. per port per min. was chosen as the standard gas rate as this was almost the maximum flow which could be obtained through the 0.016 ports with the gas pressure available. In analyzing the results from the triple burners the same methods were employed.

When the air supply was controlled the percentage of carbon dioxide in the flue gases was treated as the principal controlled variable, flame heights and radiation being plotted against its value, with the variation in gas rate giving a family of curves for each burner. Cross plotting again yielded curves to illustrate the effect of each variable.

It will be appreciated that this analysis produces a very large number of curves; far too many for reproduction in a Paper such as this. Some of the more interesting and informative have been selected and are shown as Figs. 1 to 11.

Discussion of the Results

Single Burners

L.T.—As might be expected, the L.T. increases with increasing port spacing, and decreases with increasing gas rate. If the L.T. exceeds a certain critical value, apparently about 33 msec., the flame does not run along the burner, and the gas accumulates until it ignites explosively. Just below this critical value the L.T. is uncertain and variable; the run of the flame is subject to hesitations, apparently caused by very light draughts creeping around the screening or induced by the pilot flame.

Fig. 1 shows how the L.T. is affected by gas rate for burners of the set 7/026/3 to 10. These results are typical of all the sets. Fig. 2 shows how the L.T. for the same set varies with the port spacing when the gas rate is constant.

The maximum port spacing which allows the flame to run depends on the port diameter; with 0.016 ports 6 mm. is the maximum, with 0.020 and 0.022 ports 7 mm., and with 0.024, 0.026, and 0.028 ports it is 8 mm. This, in other words, means that L.T. decreases with increasing port diameter, but the effect is insignificant at port spacings less than 6 mm. Fig. 3 illustrates the point. At the gas rates used the rate was never the critical factor determining whether the flame would run or not; it ran at all rates or none.

Flame Height.—The flame height naturally increases with increasing gas flow, but more rapidly for the burners with close port spacing than for those with wide port spacing. With the standard gas flow the flame height bears an inverse relationship to the distance apart of the ports. Increase of port size increases the height of the luminous flame at standard gas rate when the ports are close together, but has little effect when the port spacing is greater than 5 mm.

Fig. 4 shows how the height of the flame varies with gas rate for one set of burners. Fig. 2 gives the variation of the heights with port spacing at constant gas rate, and Fig. 3 the effect of port diameter when the other factors are constant. Under the conditions of test the burner diameter is not relevant.

Radiation.—The percentage of radiation tends to decrease with increasing gas flow, more noticeably with close than with widely spaced ports. At standard gas flow the percentage of radiation fall off with increasing port spacing. With standard gas flow and constant port spacing the percentage of radiation increases with port diameter. Figs. 2 and 3 show the dependence of radiation on port spacing and diameter.

Triple Burners

L.T.—Nothing very interesting comes from an examination of the L.T. curves. The results are very similar to those for a single burner, but more erratic.

In the lighting-across experiments port spacing was still the factor controlling smooth lighting: at 7 mm. spacing the burners lit across at all separations up to 17 mm., the maximum used, and at 8 mm. port spacing the action was erratic even at the minimum separation of 9.5 mm.

Flame Height.—The flame curves follow the course which might be expected. The height is reduced by increasing either port spacing or burner bar separation, but in each case a minimum height is reached which is not affected by further increase of spacing. At the standard gas rate of 3 B.Th.U. per port per min. increase of bar spacing over 13 mm. has little effect if the port spacing is not less than 5 mm., and at a gas rate of 4 B.Th.U. per port per min. the same is true for port spacings of not less than 7 mm. With a port spacing of 4 mm. and a bar separation of 9.5 mm., the flames are excessively tall for all reasonable gas rates.

Fig. 5 shows the relationship between flame height and gas rate for a typical set of round bars at a variety of bar spacings. In Fig. 6 are given the curves of flame height against bar spacing curves at 3 B.Th.U. per port per min. derived from Fig. 7 and from similar families of curves drawn for other port spacings. Fig. 7 is similar to Fig. 6, but is obtained by the use of oval tubes. The likeness of the curves indicates that the factor controlling flame height is the gap between the walls of the burner bars and not the distance between centres. This means that for a given flame height the distance between centres will be smaller for oval tubes with their major axes vertical than for round tubes, and a more compact burner will result.

Controlled Air Supply

Flame Height.—As the air inlet is closed and the carbon dioxide content of the flue gas rises, the height of the flames is at first unchanged, but after a certain concentration has been reached, th precise value of which depends on both port size and gas rate, the flames become taller. A most unexpected phenomenon then becames apparent with some of the burners; the curves drawn for different gas rates cross one another, and at a particular carbon dioxide concentration a reduction in gas rate may lead to an increase in flame height. The result of this is that the curves relating flame height to gas rate, at a fixed value of carbon dioxide, show a minimum flame height at some particular gas rate. This minimum is only apparent when the carbon dioxide is fairly high; when it is low the curves slope steadily as in Fig. 4. Fig. 8 shows this effect for four different burners, a family of curves at various carbon dioxide concentrations being drawn for each burner. From these curves are derived those shown in Fig. 9. They illustrate how the flame height depends on the carbon dioxide concentration at a variety of port diameters when the gas rate is constant, and show that the flames grow more rapidly with increasing carbon dioxide when the ports are large than when they are small.

Radiation.—As shown in Fig. 10, the percentage of the heat radiated increases continuously with the concentration of carbon dioxide at each gas rate, even when the flame height remains constant. When, however, radiation is plotted against gas rate at a particular value of carbon dioxide concentration, curves showing a minimum are again found, the minimum being much more pronounced with small ports than with large ones. A family of such curves is shown in Fig. 11.

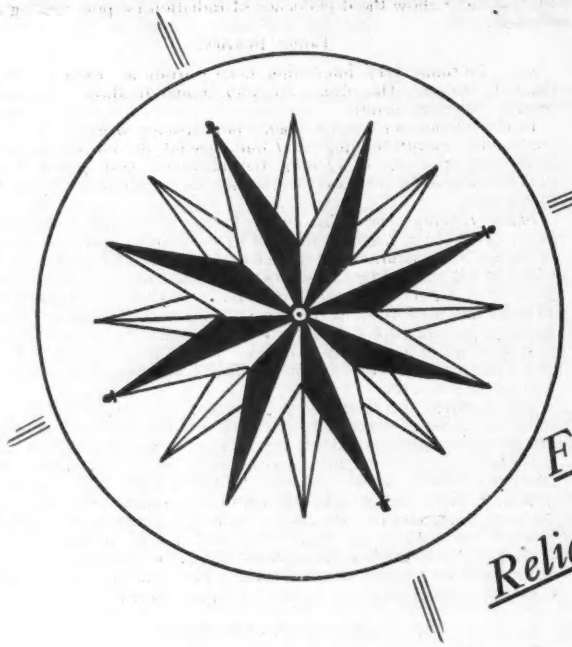
Burner Design

It is now proposed to show how the results of the experiments described have been applied to the design of a burner for a water heater. The problem is to design a burner (to occupy a given area) which is capable of passing a given volume of gas of known calorific value, which will have flames as short as possible both when new and throughout its life, and which will radiate the minimum of heat and light sweetly without explosion.

In the case under consideration, flame height was treated as the most important factor, as great emphasis was placed on a heater of minimum overall length. Radiation can be taken care of by suitable design of combustion chamber, but, generally speaking, reduction in flame height leads to lower radiation. With regard to lighting, provided it be known that the flames run from port to port, no advantage is gained by reducing L.T. to a minimum.

It is obviously necessary, for small flame height, to burn the lowest possible volume of gas at each port; which means that the burner should have the maximum number of ports consistent with the absence of interference one with another. To this end a port spacing of 7 mm. was chosen (Fig. 2); oval tubes with their major axis of cross-section vertical were used, and the space between them was fixed at 6 mm. (Figs. 6 and 7). This meant that the burner had in all 550 ports, and, as the total volume of gas to be burned was 3.3 cu.ft. per min. at calorific value of 500 B.Th.U. per cu.ft. (1,650 B.Th.U. per min.) each port has to pass 3 B.Th.U. per min.

It is now necessary to fix port diameter. The smaller the port diameter the shorter the flame (Fig. 9), but at 7 mm. spacing the



CARDINAL POINTS

Quality

Finish

Reliability

SAWER & PURVES

(Branch of Meters Ltd.)

NELSON METER WORKS,
MANCHESTER, 10

TELEPHONE : COLLYHURST 2289
TELEGRAMS : SAWER, MANCHESTER

Also at

Radford Meter Works
NOTTINGHAM
Tele : 75202

Derby Road
WATFORD
Tele : 2645

Myrtle St., Bedminster
BRISTOL, 3
Tele : 63127

Gasholders

PURIFIERS
CONDENSERS
SCRUBBERS
STEEL TANKS
COAL & COKE-HANDLING PLANT

SAM^L CUTLER & SONS LTD.

39 Victoria Street,
WESTMINSTER, S.W.1
Telephone : Abbey 3121.
Telegrams : Retortus, Sowest, London.

Providence Iron Works,
MILLWALL, E.14
Telephone : East 5231 - 2.
Telegrams : Cutler, Millwall, London.

flame will not run for certain if the port diameter is less than 0.5 mm. which really fixes the minimum port diameter.

Two other factors have to be considered, however, in deciding port diameter: they are the pressure drop across the port and the air entrtainment due to the velocity of the jet. The latter factor is bound up with the design of the remainder of the heater, but, generally speaking, the smaller the port the better, whereas from the point of view of pressure drop the larger the port the better. The pressure drop decreases as the fourth power of the diameter, so that a small increase in port diameter will cause a great reduction in pressure with a relatively small change in flame height and air entrainment. The port diameter chosen as a compromise was 0.55 mm.

It has been shown how the scientific method may be applied to the problem of the design of pin-hole burners. The graphs published have been selected from the scores which have been drawn from the experimental results, and every problem to be solved will need its own set of curves treating the aspect under consideration.

This research is not complete, and more work remains to be done. One important factor still to be investigated is the effect of gas composition. This involves the effect of density as well as the effect of calorific value.

The Authors' thanks are due to the Directors of Ascot Gas Water Heaters, Ltd., for permission to publish, and to Mr. A. Whitaker, O.B.E., M.A., F.Inst.P., M.I.E.E., for his encouragement and criticism.

GAS UNDERTAKINGS RESULTS

Leek Gas Department.—During the year ended Mar. 31, 1947, the Department had a record high output of gas—194 million cu.ft. compared with 10 million less the previous year. Total income of the Department was £73,188, an increase of £10,423. The advance is not due to any increase in gas prices but is chiefly attributable to the all-round expansion in the Department's output and turnover. Value of gas appliances sold at the showroom during the year was £8,675, an increase of £6,104 over the total appliance sales for the preceding year, and it is interesting to note that a further increase in the volume of appliance sales has occurred since the close of the year. During the period April 1 to Nov. 30 the total appliance sales amounted to £14,778. The Ministry of Fuel and Power has granted a loan sanction of £8,000 representing the original estimated expenditure on the financing of hire purchasing appliance sales during the current year.

* * *

Colne Gas Department.—Gross profit for the year ended Mar. 31 at £8,739 was greater than that for the previous year by £4,105, and represented 87% of the total outstanding debt. Revenue account expenditure was £90,382, an increase of £13,213, and income was £99,121, an increase of £17,318. Net profit at £3,764 was £1,982 more than for 1946, and the outstanding mortgage debt was reduced to £10,054, which is equivalent to £33 per million cu.ft. of gas sold. Mr. A. H. Nicholson, Engineer and Manager, in his annual report, states that the average price received for gas sold for all purposes was 10.36d. per therm against 10.07d. for the previous year. Gas made during the year was 328,689,000 cu.ft., an increase of 6.47%, and set up a new record for the Department. Gas sent out totalled 328,670,000 cu.ft., or 6.5% more than in the previous year, and all demands were met, in spite of difficulties and the fact that at one time coal stocks were reduced to three days' consumption, without the necessity for reducing pressures. During the past 10 years the average cost of coal has increased by 26s. 9d. per ton, or 119%. For the third year in succession there was an increase in the coke made for sale per ton of coal carbonized. But for the Ministry of Fuel and Power instruction to curtail benzole production, the output would have been greater by several thousand gallons, but actually the output of crude benzole was 29,203 gall., against 31,954 gall. Total value of sales at the showrooms was £12,726, an increase of £8,014 over the previous year. Hire purchase facilities were re-introduced in January, and the value of this business for the three months to Mar. 31 was £2,523.

* * *

Danish Gas Company.—The accounts for the year to June 30, submitted at the annual meeting on Dec. 15, showed that after charging administration, pensions, &c., and transferring Kr. 314,270 (the kroner, at 19.36 to the pound, is approximately equal to 1s.), the balance standing to the debit of profit and loss account was Kr. 7,977. The results of the year's working showed some improvement, due to an increase in the consumption of gas, which is, however, still subject to rationing. The Company continues to suffer from having to use inferior coal, the cost of which is disproportionately high in comparison with the prices received for residuals. Capital expenditure of Kr. 200,778 for additional mains, meters, &c., was incurred during the year and necessary renewals and repairs were carried out so that the works are in a condition to meet any demands that are likely to be made on them in the immediate future. A programme for the overhaul of part of the carbonizing plant made necessary by the Company's inability to carry out adequate repairs during the war years has been decided upon and work on this will commence next spring. Communication with Ribnitz has been partially re-opened, and the Directors are informed that the Company's property is intact, but that lack of coal has caused many lengthy interruptions in the gas supply. No direct control of the undertaking is yet possible, nor is the transfer of funds out of Germany permitted. Lieut.-Colonel E. C. Woodall, O.B.E., has succeeded his father, Mr. Henry Woodall, as Chairman, and the vacancy caused by Mr. Henry Woodall's retirement from the Board has been filled by the appointment of Colonel Harold C. Smith, C.B.E.

* * *

Southport Gas Department.—Mr. H. James Risby, Engineer and Manager, records in his annual report for the year ended Mar. 31 a total make of 6,957,630 therms, an increase of nearly 60% over the pre-war record. The total sales for the year were 14.36% up on the preceding year, after a previous increase of 5.17%. The average price received for gas was 9.08d. per therm which, incidentally, was equivalent to the pre-war average price of gas for Great Britain. Gross profit was £24,346 against £34,603, and after paying interest and sinking fund, income tax, &c., amounting to £16,546 there was a net profit of £7,800 against £155 last year. The balance carried forward was £28,401, compared with £39,578 for the previous year. No rents are charged for main supply meters and all quarterly accounts are subject to a discount of 5% for payment within one month. For central heating on a large scale or steam raising there is a fixed price of 6d. per therm, less 5%, within the borough, and 7d., less 5%, outside the borough. In the cold spell last winter coal stocks were reduced to four days' supply, but full pressures were maintained. Increased demands are being made by industrial and commercial consumers, particularly for bakers' ovens, and the demand for gas for central heating and steam raising at the special low rate is rapidly ncireasing. Considering gas on a thermal basis, with the price at present ruling in Southport, it compares most favourably with any other fuel plus the advantages of cleanliness and thermostatic control, and its adaptation for these purposes is being generally appreciated throughout the town. In conjunction with one of the leading lighting firms Mr. Risby has evolved a type of street lamp which he claims will not only keep Southport in the forefront in this field but will considerably improve the street lighting of the town. The gas consumption of the "Southport" lamp, of 4,500 candle power, only slightly exceeds that of existing 1,000 candle power six-light lamps. Reorganization of the staffing establishment of the Undertaking has been effected and mechanized systems of costing investigated. The "Hollerith" system is being introduced, and Mr. Risby says that the resultant economies ultimately effected should prove considerable.

COMPANY NEWS

Cannon Iron Foundries, Ltd.—Trading profit, together with interest and dividends, for the year ended June 30, was £200,762 against £141,407 for the previous year. After providing for depreciation, pensions, and reserve against Government securities, there was a net profit of £174,139, an increase of £48,732 and a record for the Company. The final dividend is 10%. Presiding at the annual meeting, Mr. A. F. Oatley said the general sales turnover showed an increase on the previous year of 54.5%: this was wholly due to larger and wider distribution of the Company's products both at home and overseas. The heavy chemical plant section turnover was increased by 63%, approximately 70% of its total turnover being supplied directly or indirectly for export. Further expansion had been planned for this section of the business, a permit having been granted for the erection of a large modern foundry in order to cope with an increasing order-book and the long-term development programme. An outstanding achievement by the Company since the war was that they had successfully pioneered the introduction to the Gas Industry of complete gas burning appliances, parts, and fittings in light alloys, and were now the largest suppliers in the country. The trade name of "Canalloy" had not only become well established in the home market, but was already known abroad. Whereas pre-war exports represented a negligible proportion of the Company's turnover, the export drive, commenced two years ago, was showing encouraging progress, thanks to the enthusiastic activity of the export section, which, in spite of the unnecessary procrastinations of the official system controlling exports and the high cost of shipping, had laid a good foundation for the successful development of export sales.

GAS STOCKS AND SHARES

British railways passed into public ownership on New Year's Day and the terms of the new stock to be issued in exchange for old railway and canal stocks were announced. It is to be a 3% British Transport Guaranteed stock, redeemable at par between July 1, 1978, and July 1, 1988. Stockholders will receive a nominal amount of the stock equal to the take-over prices for their stocks as laid down in the relative schedule of the Transport Act. There had been heavy transactions earlier in the week in home rails, but the new account opened quietly in anticipation of the terms of the new stock. Re-investment demand for industrial equities n a market that was short of shares was responsible for some considerable increases in prices of industrial shares.

Transactions in gas stocks have shown a remarkable increase in recent weeks, the daily average number of dealings having jumped from about 40 a few weeks ago to nearly 80 just before the holidays, and remaining at well over 60 last week. As a consequence there has been a general increase in quotations in which all the Greater London companies have participated, with the result that South Suburban, Tottenham, Wandsworth, and Watford and St. Albans all stand now at 110-115.

Since the beginning of December the great majority of the stock prices quoted in our full table have advanced. The following are the price changes recorded within the week ended last Thursday:

OFFICIAL LIST

Associated G. & W., ord.	120/-	22/-	+ 1
Commercial, ord.	60	85	+ 1
Croydon, 4 p.c. Irred. Pref.	95	100	+ 2
Gas Light and Coke, ord.	22/6	23/6	+ 3d.
Portsmouth and Gosport, cons.	140	150	+ 3
Severn Valley, ord.	21/6	23/6	+ 6d.
Sheffield, 4 p.c. red. deb. (xd. Dec. 31)	96	101	— 1
South Eastern Gas Corp., ord.	21/-	23/-	+ 6d.
South Metropolitan, ord.	95	100	+ 1
South Suburban, ord.	110	115	+ 2
Tottenham, ord.	110	115	+ 2
United Kingdom, ord.	22/6	24/6	+ 1
Wandsworth, cons.	110	115	+ 1
Watford and St. Albans, ord.	110	115	+ 2
Wolverhampton, ord.	120	125	+ 2

Quotations on the London Stock Exchange

When last ex-Dividend	Dividends Interest.% Last Yr.	Prev. Yr.	NAME.	Quotations Jan. 1
Sept. 3	—	4	Alliance & Dublin Cons. Ord.	21/ —22/
Oct. 29	5	5	Asscd. Gas & Water U'd'tgs Ord.	20/ —22/
"	6	6	Do. Deferred	20/ —22/
Sept. 3	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	20/ —22/
"	4	4	Do. 4 p.c. Red. Cum. Pref.	19/ —21/
"	4	4	Do. 4 p.c. Irred. Cum. Pref.	19/ —21/
Aug. 20	—	7	Barnet Ord. 7 p.c. max.	140—150
Aug. 6	—	5	Bath Cons. Ord .5 p.c. basic	99—104
Sept. 17	6½	10	Bombay, Ltd., Stock	46/- -49/-
Sept. 3	—	8½	Bournemouth Std. 5 p.c. sliding scale	165—175
"	7	7	Do. 7 p.c. max. div.	145—155
"	4	4	Do. 4 p.c. Pref.	99—104
"	6	6	Do. 6 p.c. Pref.	125—130
"	3½	3½	Do. 3½ p.c. Red. Deb.	95—100
Dec. 10	4	4	Do. Perp. 4 p.c. Deb.	97—102
Aug. 20	—	5·35	Brighton, &c., 5 p.c. Std. Cons.	100—105
"	—	6·3	Do. 6 p.c. Std. Cons.	108—113
Dec. 10	5	5	Do. 5 p.c. Perp. Deb.	110—115
Aug. 6	—	5	Bristol, Gen. Cap. 5 p.c. max.	101—106
Dec. 10	4	4	Do. 4 p.c. New Deb. Red.	97—102
Oct. 1	—	7½	Brit. Gas Light Ord.	120—125
Dec. 31	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	107—112xd
Dec. 10	4	4	Do. 4 p.c. Red. Deb.	95—100
Aug. 6	—	10	Cambridge U. & T. Orig. 10 p.c. Cons.	180—190
"	—	5	Do. 5 p.c. Cons. 'C'	95—100
"	—	7	Do. 7 p.c. Cons. 'B.'	125—130
Oct. 15	4½	4½	Cape Town, Ltd., 4½ p.c. Cu. Pf.	15/6—17/6
July 16	—	6½	Cardiff Con. Ord.	113—118
Aug. 6	—	5	Cheltenham, 5 p.c. basic Cons. Ord.	97—102
Dec. 10	4	4	Do. 4 p.c. Perp. Deb.	97—102
Aug. 6	—	5½	Chester United Ord.	107—112
Oct. 29	—	7	Colombo Ltd., Ord.	35/ —40/
"	—	7	Do. 7 p.c. Pref.	23/6—25/6
Oct. 15	5	5	Colonial Gas Assn. Ltd. Ord.	16/—18/-
"	—	8	Do. 8 p.c. Pref.	24/—26/-
Aug. 6	—	5	Commercial Ord.	80— 85
Dec. 10	3	3	Do. 3 p.c. Deb. Perp.	77— 82
Aug. 20	5	5	Do. 5 p.c. Irred. Deb.	110—115
"	—	6	Croydon sliding scale	117—122
"	—	5	Do. max. div.	97—102
"	4	4	Do. 4 p.c. Irred. Pref.	95—100
Dec. 31	4	4	Do. 4 p.c. Perp. Deb.	97—102xd
"	5	5	Do. 5 p.c. Perp. Deb.	110—115xd
Aug. 20	—	8½	Derby Cons. Ord.	135—140
Dec. 10	4	4	Do. 4 p.c. Red. Deb.	95—100
Aug. 6	—	5	East Hull Ord.	92— 97
Aug. 20	—	5	East Surrey 'B,' 5 p.c	98—103
"	—	6	Do. 6 p.c. Cum. Pref.	113—118
Dec. 31	5	5	Do. 5 p.c. Irred. Deb.	110—115xd
Feb. 26	6¼	6¼	East Wight Cons. Ord.	110—120
Aug. 6	—	5	Eastbourne 'A'	90—100
"	—	3½	Do. 'B'	85— 95
Nov. 12	5	5	Gas Consolidation Ord. 'A'	19/ —21/
"	5	5	Do. Ord. 'B'	18/6—20/6
"	4	4	Do. 4 p.c. Red. Cum. Pref.	18/6—20/6
Aug. 6	—	5	Gas Light & Coke Ord.	22/6—23/6
"	—	3½	Do. 3½ p.c. max.	78— 83
"	—	4	Do. 4 p.c. Con. Pref.	96—101
Dec. 31	3½	3½	Do. 3½ p.c. Red. Pref.	94— 99xd
Nov. 26	3	3	Do. 3 p.c. Con. Deb.	84— 89
"	5	5	Do. 5 p.c. Deb.	100—105
"	4½	4½	Do. 4½ p.c. Red. Deb.	102—107
Sept. 3	3½	3½	Do. 3½ p.c. Red. Deb.	93— 98
Aug. 6	—	5	Gloucester Cons. Ord.	97—102
Feb. 12	2	Nil	Great Yarmouth (8½ p.c. max)	10 — 12½
Sept. 3	—	7½	Guildford Cons. Ord.	131—136
Aug. 20	—	5	Hampton C't, 5 p.c. Cons. Ord.	95—100
Sept. 3	—	5	Hartlepool G. & W. 5 p.c. Ord.	98—103
Oct. 1	—	6	Hastings & St. L. (5 p.c. Std.)	107—112
"	—	5	Do. (3½ p.c. Std.)	90— 95
June 18	7½	6	Holyhead & N. Wales Ord.	22/—24/-
Aug. 6	—	5	Hornsey 3½ p.c. Std.	93— 98
"	—	6 7/10	Do. 5 p.c. Std	115—120
May 14	8½	8	Imperial Continental Cap.	116—121
July 16	—	3½	Do. 3½ p.c. Red. Deb.	95—100
Aug. 20	—	7½	Lea Bridge Co., Cons. Ord.	135—140
Aug. 6	—	5½	Liverpool 5 p.c. Ord.	115—120
Sept. 17	—	7½	Luton Cons. Ord. 'A'	120—130
"	—	6½	Do. Ord. 'B'	105—115

When last ex-Dividend	Dividends Interest.% Last Yr.	Pref. Yr.	NAME.	Quotations Jan. 1
July 16	7	7	Malta & Med'n., 7 p.c. 1st Pref.	100—110
"	7½	7½	Do. 7½ p.c. 2nd. Pref.	105—115
Aug. 20	—	5.0	M.S. Utility 'A' Cons.	97—102
		3.200	Do. 'B' Cons.	68— 73
		5	Do. 'C' Cons.	98—103
	4	4	Do. 4 p.c. Cons. Pref.	94— 99
Oct. 29	4	4	Montevideo, Ltd. Ord.	112—122
Aug. 6	—	5⅝	Newcastle and Gateshead Ord.	22/6—24/6
Dec. 31	3½	3½	Do. 3½ p.c. Perp. Deb.	90— 95xd
	—	7	Newport (Mon.) Cons.	97—102
Dec. 10	5	5	Do. 5 p.c. Perp. Deb.	107—112
Aug. 6	—	6⅝	North Middlesex 6 p.c.	122—127
	5	5	Do. 5 p.c. Pref.	105—110
	5	5	Northampton Cons.	100—105
	—	10	Oxford, Cons. Ord.	170—180
Dec. 10	5⅛	5⅛	Plymouth & Stone Ord.	102—107
	8½	8½	Do. Addl.	12 — 14
	7½	7½	Do. New	12 — 14
Sept. 17	5	5	Do. 5 p.c. Deb. Perp.	110—115
Aug. 20	—	7½	Portsmouth & Gosport Cons.	140—150
	—	5	Do. 5 p.c. max.	100—105
Aug. 6	—	10	Preston 'A'	160—180
	—	7	Do. 'B'	125—135
June 24 46	2	4	Primitiva Holdings, Ltd. Ord.	11/6—13/6
Dec. 10	...	6	Do. 6½ p.c. Red. Cum. Pref.	98—103
Aug. 20	—	5	Reading, 5 p.c. max.	97—102
	—	—	Do. 4 p.c. Perp. Deb.	95—100
Dec. 10	4	4	Do. 3½ p.c. Red. (Non-Cum.) Pref.	95—100
Aug. 6	—	5	Romford, Ord.	105—110
Sept. 30	4	4	Do. 4 p.c. Debs. Red.	95—100
Sept. 17	—	7½	Severn Val. Ltd. Ord.	21/6—23/6
	4½	4½	Do. 4½ p.c. Cum. Pref.	19/6—21/6
Aug. 20	—	6½	Sheffield Cons.	125—130
Dec. 31	4	4	Do. 4 p.c. Red. Deb.	96—101xd
Sept. 3	—	6	South East'n Gas Ltd. Ord.	21/—23/-
	—	4½	Do. 4½ p.c. Red. Cum. Pref.	19-/—21/-
	4	4	Do. 4 p.c. Irred. Cum. Pref.	19/—21/-
Aug. 6	—	5	South Metropolitan Ord.	95 —100
	6	6	Do. 6 p.c. Irred. Pref.	113 —118
	4	4	Do. 4 p.c. Irred. Pref.	95 —100
	3	3	Do. 3 p.c. Perp. Deb.	82 — 87xd
July 16	5	5	Do. 5 p.c. Red. Deb.	97 —102
Aug. 6	—	5	South Suburban Ord. 5 p.c.	110 —115
	5	5	Do. 5 p.c. Perp. Pref.	105 —110
	4	4	Do. 4 p.c. Perp. Pref.	95 —100
	3½	3½	Do. 3½ p.c. Red. Pref.	95 —100
Dec. 10	5	5	Do. 5 p.c. Perp. Deb.	110 —115
Sept. 17	—	5½	South West. G. & W. Ltd. Ord.	19/—21/-
Aug. 6	—	5	Southampton Ord.	100 —105
Aug. 20	—	6	Sunderland Ord.	118 —123
Aug. 6	—	4½	Swansea Ord.	82 — 87
	5½	5½	Do. 5½ p.c. Red. Pref.	97 —102
Sept. 17	—	7	Swindon Cons. Ord.	113 —118
Aug. 6	—	5	Tottenham Ord.	110 —115
	—	5	Do. 5 p.c. Pref.	105 —110
	—	5½	Do. 5½ p.c. Irred. Pref.	110 —115
Dec. 10	4	4	Do. 4 p.c. Perp. Deb.	97 —102
Oct. 1	—	7½	Tunbridge Wells, 4 p.c. Sliding	115 — 120
Nov. 12	—	7	U. Kingdom Ltd. Ord.	22/6—24/6
	—	4½	Do. 4½ p.c. 1st Cum. Pref.	20/—22/-
	—	4	Do. 4 p.c. 1st Red. Cum. Pref.	19/—21/-
Dec. 10	4½	4½	Do. 4½ p.c. 2nd Non. Cum. Pf.	18/6—20/6
Sept. 17	3½	3½	Do. 3½ p.c. Red. Deb.	95 —100
Aug. 6	—	6⅝	Uxbridge, &c., 5 p.c. Cap.	123 —127
	5	5	Do. 5 p.c. Pref.	105 —110
	5	5	Do. 5 p.c. Perp. Deb.	110 —115
Nov. 26	5	5	Wandsworth Cons.	110 —115
Aug. 6	—	5	Do. 4 p.c. Pref.	95 —100
	4	4	Do. 5 p.c. Irred. Deb.	110 —115
Dec. 10	5	5	Do. 4 p.c. Irred. Deb.	97 —102
	4	4	Watford & St. Albans Ord.	110 —115
Aug. 6	—	5	Do. 5 p.c. Pref.	105 —110
	5	5	Do. 5½ p.c. Pref.	110 —115
	5½	5½	Weymouth Ord. (5 p.c. Basic)	95 —100
	—	5	Woking District "A" Ord.	180 —190
	—	11	Do. "B" Ord.	130 —135
	—	7·7	Wolverhampton Cons. Ord.	120—125
Aug. 20	—	8	York Cons. Ord.	89 — 94
Sept. 3	—	5		

Permac
METAL-TO-METAL JOINTING MATERIAL

Ever since 1913 "PERMAC," the original Metal-to-Metal Jointing, has been holding up difficult joints in Gas Works and on Coke Oven Plants all over the world. Equally suitable for any joint—steam, water, gas, oil, benzol, ammonia, etc.—screw pipe or flange.

Manufactured only by

THOMAS & BISHOP Ltd.
32 ARTHUR ROAD, LONDON, S.W.19

PUBLICATIONS RECEIVED

We acknowledge receipt from the Hon. Editor of a copy of the *Journal of the Engineers' Guild*, No. 4, which includes articles by Dr. W. E. Wickenden on "Professional Goals for To-day," Dr. L. E. C. Hughes on "Population and Engineering," and Ian R. McKechnie on "Crossroads."

* * *

We are indebted to the *Australian Gas Institute* for a *Report* of their "Transactions" covering the session 1945-46. Within its customary green binding the record includes reports of the Northern Section and the Southern Section of the Institute in the years 1945 and 1946, and also a full report of the proceedings at the annual meetings in both those years.

* * *

The December issue of the *Stantonian*, house magazine of the Stanton Ironworks Co., Ltd., includes an illustrated account of the visit which the Manchester District Association of Gas Engineers paid to Stanton some time ago, and a report of the 29th annual prizegiving in connexion with the Company's education scheme. As a welfare supplement, the minutes of the Stanton Works Committee reflect the wide range of subjects dealt with by this Committee on which the management and employees are almost equally represented.

* * *

The *Ironmonger Diary and Hardware Buyers Guide* for 1948 is the 80th issue. Although still in its wartime octavo page size it sets up a new record in the number of advertisement pages, and its literary contents is, as always, up to date and extremely informative to the trade. Controls of various kinds still inevitably monopolize most of the available text space, but there are also useful articles on buying a business, forming a company, stock control, workshop charges, export credits, patents, designs, and trade marks. The section devoted to trade marks and brand names is of value to all who seek ready to hand information as to where to buy products of which they may know only the trade name.

* * *

A new catalogue of water cooling plant is now available from the Visco Engineering Co., Ltd., entitled *Visco Water Cooling*. This briefly describes the types of cooler in general use and provides numerous illustrations of actual installations at factories, collieries, gas-works, sugar refineries, &c. A useful addition is the group of tables which form something of an appendix. Seven pages are devoted to meteorological information, giving the mean monthly maximum and minimum temperatures, the absolute maximum and minimum temperatures for the month, and the mean relative humidity percentage for Africa, North, South, and Central America, Asia, Australasia, and Europe. Other tables include discharge rates from pipes at different velocities, power consumption in cooling towers at various heads, and loss in head of water due to friction. The catalogue is admirably produced on art paper and is a useful addition to the bookshelf.

GAS PRODUCTS PRICES

The London Market

Jan. 3.

The price of briquetting pitch for the home market is now 100s. per ton f.o.r. at makers works. Other prices, all of which are controlled by Government Orders, are unchanged.

The Provinces

Jan. 3

Average prices for gas-works products this week are: Pitch, 100s. per ton; toluole, naked, North, 90's, 2s. 4d. to 2s. 6¾d. per gall; pure, 3s. 2¼d. Prices for carbolic acid 60's anthracene, creosote oil (hydrogenation), coal tar oils (timber preservation, &c.) and strained anthracene oil are controlled by Government Orders. Prices for road tar are increased by one penny per gall. by S. R. & O. 1947, 177.

Scotland

Jan. 3

The New Year has opened with demand continuing strong both prompt and forward.

Refined tar.* Yield to the distiller is 6d. per gall. ex works, naked. Creosote oil. Timber preserving quality,* 5½d. to 6½d. per gall.; hydrogenation oil,* 5¾d. per gall.; low gravity or virgin oil,† 7¼d. to 7½d. per gall.; benzole absorbing oil, 6½d. to 8d. per gall. Refined cresylic acid is 3s. 6d. to 4s. 6d. per gall. ex works, naked, according to quality. Crude naphtha,† 8d. to 10d. per gall. Solvent naphtha.* Basic maximum prices delivered in bulk 90/160 grade, 2s. 10d. per gall., and 90/190 heavy naphtha, unrectified, 2s. 0½d. per gall.; rectified, 2s. 4d. per gall. Pyridine,† 90/160 grade 15s. per gall, and 90/140 grade 17s. per gall.

* Price controlled. † Uncontrolled.

TRADE CARDS

NATIONAL ENAMELS LTD.
53, Norman Road, Greenwich, London, S.E.10.
T/N Greenwich 2266–7.
Our COOKER LININGS, CROWN TRAYS and SPLASHBACKS have been well proved by the Gas Industry.

FLAVELS of LEAMINGTON
STOVEMAKERS SINCE 1777.

TOM CARRINGTON & CO. LTD.
Lyndon Toolworks, West Bromw'ch. T/N 0317 (2 lines).
"LYNDON" and "EGA-KUT"
SCREWING TOOLS;
TAPS; DIES; STOCKS AND DIES;
GROUND THREAD TAPS

HILMOR LTD.
Tube Bending Machines (Hand and Power). Tube Bending Specialists.
63, Calabot Street, King's Cross, London, N. 1.
'Phone: Terminus 4714 (2 lines).
We can supply machines for bending Gas and Steam Piping from ¼ in. to 2 in. in the cold state.

Lift it by KING

King Electric Chain Pulley Blocks range in cap. from 5 cwts. to 10 tons.

GEO. W. KING LTD.

Makers of Electric Pulley Blocks, Cranes and Conveyors. Write for illustrated booklets.

P.B.G. WORKS . HITCHIN . HERTS

No. 2.

BRITISH PRODUCTS ALCOSA

SOLDERING FURNACES

There is a great demand for Wilkes Soldering Furnaces. Place your order now to ensure early delivery.

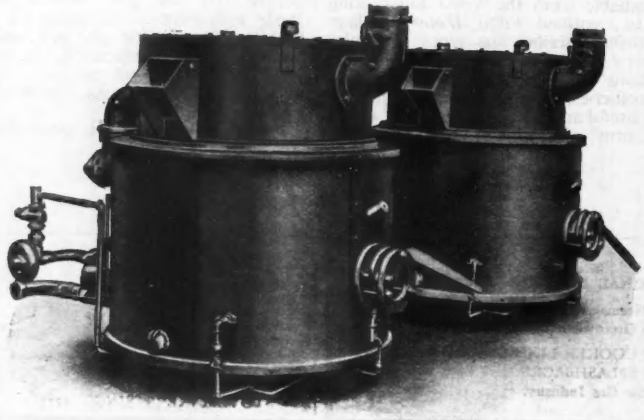
Full particulars of the range will be sent on request.

A. H. WILKES & CO.

A subsidiary of William Allday & Co., specialising in Industrial Gas Equipment.

38A, PARADISE STREET, BIRMINGHAM, 1.

Soft Metal Melting Furnaces



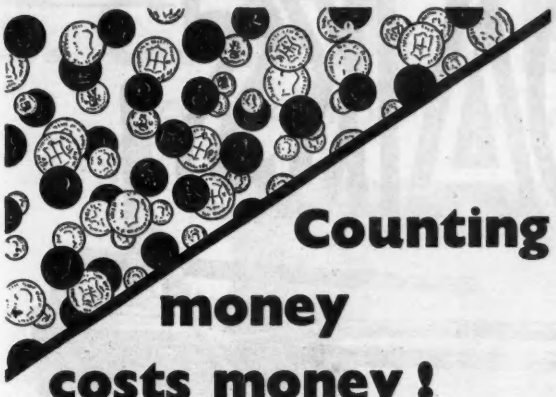
The melting of Soft Metal Alloys is essentially one of relatively low temperature but requires a fast heat input to obtain maximum production.

This heating must be well distributed to avoid hot spots which reduce pot life.

This problem of heat balance has been carefully worked out in our Soft Metal Melting Furnaces.

For fast and economical melting with low maintenance.

Consult **BRITISH FURNACES LTD CHESTERFIELD**



Counting money costs money!

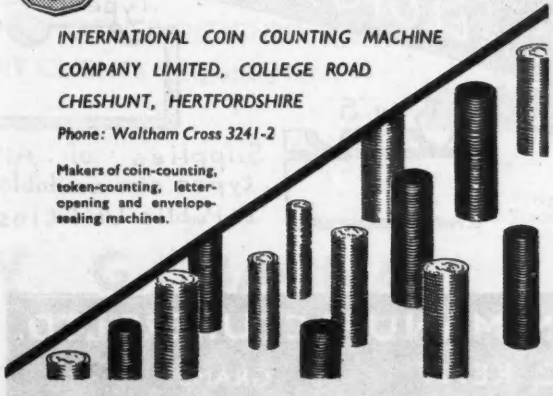
Any business that has to handle and count large quantities of mixed coinage and does it by hand is wasting more man-hours than business can afford today. Precious man-hours too, because the job must be done by responsible (meaning well-paid) workers. And even so, it's human to err!... Instal an I.C.C. coin-counting machine, switch on, and do the job at high speed with absolute accuracy. A typical machine sorts, counts and records £100 of mixed coinage in five minutes and the youngest office-girl can work it. We'll be glad to arrange a demonstration in your own office.

ICC **COIN-COUNTING MACHINES**

INTERNATIONAL COIN COUNTING MACHINE COMPANY LIMITED, COLLEGE ROAD CHESHUNT, HERTFORDSHIRE

Phone: Waltham Cross 3241-2

Makers of coin-counting, token-counting, letter-opening and envelope-sealing machines.



WESTBURY & SEEND ORE & OXIDE CO. LTD.

Producers of Purifying Oxides

"Seenorox" * "Westox"
"Seenox"

Orders for these vastly improved oxides are . now being booked .

HEAD OFFICE :—
West Road, Midsomer Norton, Nr. Bath
Telephone - Midsomer Norton 281

MADE IN SCOTLAND
FROM VIRGIN METALS
S·N·F·T·I
COPPER TUBES
ideal for all Gas Services
Solid drawn Copper Tubes for Domestic Water, Housing, Electrical and Gas Services.

SCOTTISH NON-FERROUS TUBE INDUSTRIES, LTD.
Works: Hillington, Glasgow, S.W.2
SALES OFFICE: 4, Blythswood Square, Glasgow 'Phone: DOUglas 7020

FOUR OAKS

FOR LABOUR-SAVING AND EFFICIENT SPRAYING

These sprayers are both labour-saving and effective in performance. They have proved themselves in many gas undertakings, and gas engineers using them consider they are all that we claim for them. Specialising in spraying apparatus, our wide range of productions includes machines for white-washing, disinfecting, creosoting and paint spraying. Tell us your spraying problem—our long experience can help you.

Prices on application.

The
"FOUR OAKS" Gold Medal "Bridgwater" Pattern

The special feature of this pump is that the pump bucket works entirely outside the liquid.

18 Gallons.

Other patterns of smaller capacity and lower prices.

THE FOUR OAKS SPRAYING MACHINE CO.,
FOUR OAKS WORKS · FOUR OAKS · BIRMINGHAM.

Telegrams: "SPRAYER, FOUR OAKS." *Telephone: FOUR OAKS 305.*

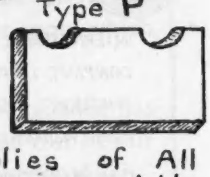
FOR AUTOMATIC IGNITION OF DOMESTIC COOKERS, FIRES, ETC. *USE*

METOLITE REGD

Lighter Flints

(PYROPHORIC ALLOYS)

Type 'P'



Type 'S'

Supplies of All types now available to Public Utilities

ESTD 1928

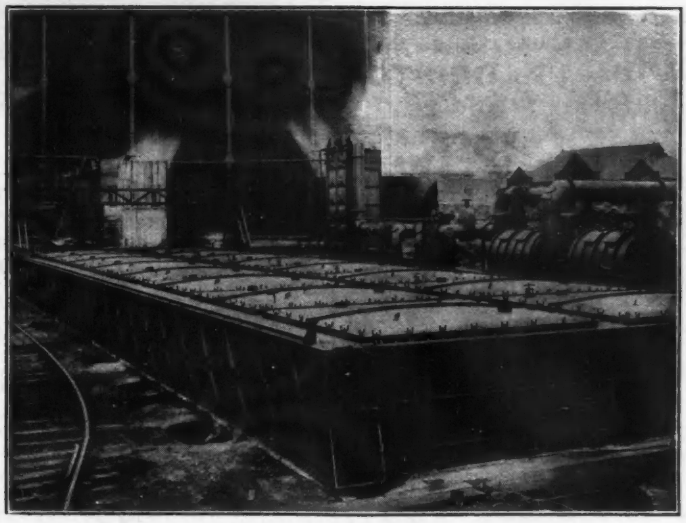
THE BRITISH FLINT & CERIUM MANUFACTURERS LTD.

PHONE Tonbridge 753 & 970 — TONBRIDGE, KENT (CONTRACTORS TO H.M. GOVERNMENT.) — GRAMS: "Britflint, Tonbridge

E. C. & J. KEAY, LIMITED

CONSTRUCTIONAL ENGINEERS AND IRONFOUNDERS,

Head Office:
6, Corporation St.,
BIRMINGHAM



London Office:
25, VICTORIA STREET,
S.W.1

Southampton
21, PORTLAND STREET

C.I. PURIFIERS RECENTLY SUPPLIED AND ERECTED

Specialists in TANKS, Steel or Cast-Iron, Riveted or Welded

STEAM LOCOMOTIVES—— FOR GAS WORKS——

BUILDERS OF ALL TYPES OF STEAM LOCOMOTIVES, WAGONS, TURNTABLES AND OTHER RAILWAY EQUIPMENT

LOCOMOTIVES DESIGNED TO SUIT CLIENTS REQUIREMENTS

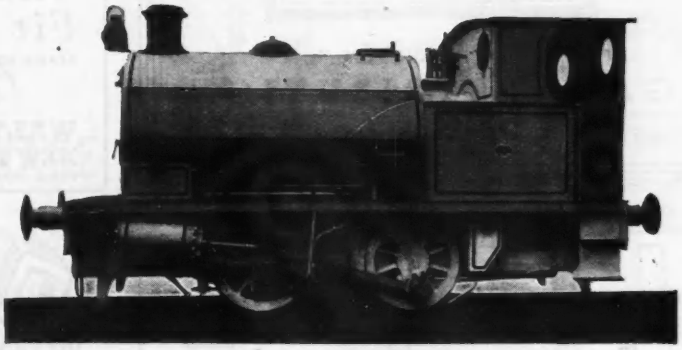


Illustration shows a four-wheeled Saddle Tank Locomotive, as recently supplied to several Gas Works.
Weight in Working Order 27 Tons. Cylinders 14" × 22"
Tractive Effort at 85% Boiler Pressure — 13,800 lb.

W. G. BAGNALL LTD.

CASTLE ENGINE WORKS, STAFFORD

Telephone: STAFFORD 321/2

Telegrams: "BAGNALL" Phone, Stafford

LONDON OFFICE:
32, VICTORIA ST., S.W.1
Tel.: ABBEY 1882

LOCOMOTIVES

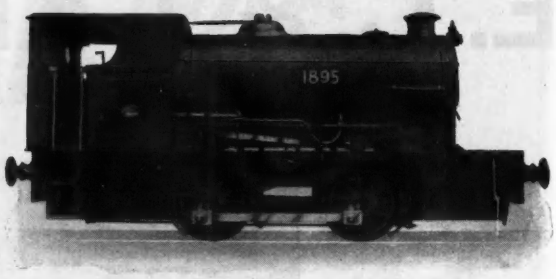
LOCOMOTIVES of all Sizes and Gauges specially constructed for Main and Branch Lines, Contractors, Docks, Gas-Works, Collieries, Iron-Works, Brick and Cement Works, &c. Locomotives of various sizes always in progress for early delivery.

Photographs, Specifications, and prices on Application

PECKETT & SONS, Atlas Locomotive Works, **LTD., BRISTOL.**

Telegraphic Address: "PECKETT BRISTOL."

London Representatives: FERGUSON & PALMER, 9, Victoria St., Westminster, S.W.



EWART CHAINBELT CO., LTD.

DERBY, ENGLAND

Driving and Conveyor Chains of the best quality; made of Ley's Celebrated Blackheart Malleable Iron.

ALSO COMPLETE CONVEYORS AND ELEVATORS

We Specialise in . .

GAS COALS

THE NEW BOWSON COAL CO.

COLLIERY AGENTS, SHIPPERS and CONTRACTORS

CINDERFORD, Glos.

Telegrams - "BOWSON CINDERFORD"

PRESSURE GAUGES

AND

THERMOMETERS

FOR ALL PURPOSES

SUPPLIED AND REPAIRED

WATER LEVEL COCKS

GLAND AND ASBESTOS PACKED

REPAIRED AND OVERHAULED

ALL REPAIRS PROMPTLY EXECUTED

HANNAN & BUCHANAN

79, ROBERTSON STREET, GLASGOW, C.2.

Tel.: CENTRAL 6897

E. E.

JEAVONS

& CO. LTD.

TIPTON

Contractors for

GAS DISTRIBUTION

'Phone :- TIPTON 2161 'Grams :- 'PIPELINES, TIPTON'

"WASK" HIGH TENSILE

MALLEABLE PIPE FITTINGS

OVER 4000 SIZES

INDIVIDUALLY AIR TESTED

STANDARD TAPER THREADS

FULL THICKNESS THROUGHOUT

Fit and forget!

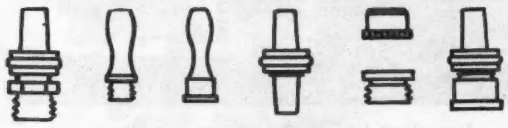
MADE BY THE MAKERS OF—

"Wask" Up and Down Patent Lamp Suspenders, the NON-DISCONNECTING raising and lowering gear.

WALTER SLINGSBY & CO., LTD.

NEW DAM WORKS - - - KEIGHLEY

Phone: Keighley 3749 (2 lines). 'Grams: Malleable Keighley.



BRASSWORK

OF BEST QUALITY AT REASONABLE PRICES

OUR RANGE OF FITTINGS IS NOT COMPLETE BUT IT IS BEING EXTENDED THOSE INCLUDED ARE AVAILABLE FOR

EARLY DELIVERY,

USUALLY FROM STOCK

SEND FOR LEAFLET TO:

LOMAX & SMITH, LTD.

EAST KINGSWAY WORKS,

DUNDEE

TEL: DUNDEE 81123

ONX FIRE CEMENT

ANOTHER GAS COMPANY states on Nov. 27th, 1944:

'We are pleased to report on the satisfactory way your special Patching Cement stood up on a repair to the front wall of one of our settings. The repair was round the producer charging hole, having to stand up to the worst conditions being subject to the heat from the setting, abrasion of hot coke, and cold quenching water, and is still standing up well after three months.

Sets like a ROCK under heat

ONX 'SUPER 85' BRAND for **RETORTS**

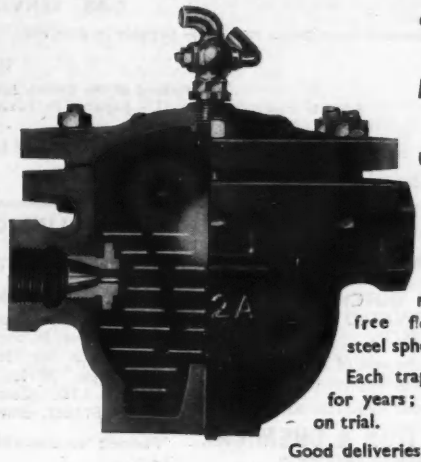
A. L. CURTIS Westmoor Works CHATTERIS Cambs.

STERLING FELT WASHERS make for GAS-TIGHT Efficiency in STUFFING BOXES

That STERLING enjoy the confidence of the Gas Industry is shown by their position as the Largest Manufacturers of Felt Washers for use in Stuffing Boxes. The widespread and increasing use of STERLING washers is a tribute to the efficiency that ensures close and uniform packing with smooth operation of the spindle.

STERLING TEXTILE INDUSTRIES Ltd
STERLING WORKS, ALEXANDRA ROAD, PONDERS END
'Phone: HOWARD 2214-5, 1755 MIDDLESEX 'Grams: STERTEX, ENFIELD

"Simplicity" STEAM TRAPS



cannot jam or blow steam

Unique in design, foolproof in operation.

'Simplicity' Steam Traps have only one moving part—a free floating stainless steel sphere.

Each trap is guaranteed for years; send for a trap on trial.

Good deliveries can be made in most sizes of traps.

THE KEY ENGINEERING CO., LTD.
4, QUEEN VICTORIA ST., LONDON, E.C.4
and TRAFFORD PARK, MANCHESTER
Telephone: CITY 2235 TRAFFORD PARK 1903

THE TURBINE FURNACE
has a reputation for
FUEL ECONOMY
BOILER EFFICIENCY
and the ability to give
LARGE STEAM OUTPUT
with
ALL CLASSES OF FUEL

THE TURBINE FURNACE Co. Ltd.
238b, Gray's Inn Road,
London, W.C. 1.

THOMAS BUGDEN & CO.

India-Rubber and Airproof Manufacturers and General Contractors.
LARGEST MANUFACTURERS OF GAS MAIN BAGS.
Telegrams—"AIRPROOF, BARB, LONDON." Telephone—6147 CLERKENWELL
Contractors to H.M. Government

Gas Bags for Repairing Mains

PATENTEES OF THE
DENMAR BAG
Impervious to Main Liquor and Climatic Influences.

Round or Cylinder Shape.

Pull-through and Expanding MAIN STOPPERS.

All types of INDIA-RUBBER BOOTS.

DRAIN RODS AND WHALE-BONE BRUSHES.

HOSE AND TUBING FOR ALL PURPOSES.

Stokers' Mitts and Gloves of every description.

Contractors' & Miners' Woollen Jackets, Trousers, Hats, &c.

244, Coswell Road, LONDON, E.C.1

CRANE
LTD

PUBLISHERS' NOTICE.

GAS JOURNAL. (Weekly.)

Subscription Rates: Home and Empire: 45/- per annum; Foreign: 52/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All Small Classified advertisements are charged at 1/- per line (approx. 8 words)—minimum charge 5/-. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies.

GAS SERVICE. (Monthly.)

Annual Subscription rate: 6/- payable in advance. Classified Advertisement charges as for "Gas Journal."

GAS.

The Record of the British Junior Gas Associations (Monthly).
Annual Subscription: 12/- payable in advance. Classified advertisements not accepted.

WALTER KING, LTD., 11, BOLT COURT, FLEET STREET, LONDON, E.C.4.
Telephone: CENtral 2236-7. **Telegrams: Gasking, Fleet, London.**

OXIDE

BEST QUALITY DUTCH BOG ORE SPECIALLY ACTIVATED OXIDE OF IRON

which has stood the test of 70 years and rapidly absorbs 60% Sulphur (wet basis).

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873
PALMERSTON HOUSE, 34, OLD BROAD STREET, LONDON, E.C. 2.
Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

PLANT, &c.

FIRTH BLAKELEY, SONS & CO., LTD.
Vulcan Ironworks, Church Fenton, Yorks.

MANUFACTURERS of Gas-holders, Tanks, Condensers, Purifiers, Scrubbers, Washers, and every description of Gas Plant.

Sole Makers of the "P.M" semi-water Gas Plant
Telegrams: "Blakeleys, Church Fenton."
Telephone: Barkston Ash 234 and 235 (Private Branch Exchange). Code: "Bentleys."

ROBERT DEMPSTER & SONS, LTD., ELLAND, Builders of CARBONIZING PLANTS, both Horizontal and Vertical. Manufacturers of CONDENSERS, PURIFIERS GASHOLDERS, &c., also every description of COAL and COKE HANDLING PLANT. *Telegrams:* "Dempster, Elland." *Telephone:* Elland 2241, 2242 and 2243.

HUMIDINE
NON-SETTING PAINT

Used by the leading Gas Companies for the protection of lower plates and cuppings of Gasholders. The most efficient anti-corrosion paint in existence. HUMIDINE never cracks, never dries and is absolutely impervious to water. OXYGRAFITE GASWORKS PAINT is also manufactured by...

ASPINALLS
(PAINTS) LIMITED
CARLETON - SKIPTON : YORKS
TELEPHONES: SKIPTON 548/9

nevin d. hirst.

PUBLICATIONS

GAS ACCOUNT CALCULATORS

SUPPLIED either by Price per Therm or Thousand, for any specified Calorific Value, in book form, office charts, or pocket charts for Meter Inspectors, printed in clear type. Write for particulars to F. H. WAKELIN, LTD., Calculator Specialists, 354, WHEELER STREET, BIRMINGHAM.

'Phone: Northern 0989. 'Grams: Reckoners B'ham.

THE "FLUXITE QUINS" AT WORK
"I've met some plumbers who plumb,
But this one just strikes me as dumb,
The joints are all right,
Soldered well, with FLUXITE,
But what waste of piping! Come — come!"

For all SOLDERING work—you need FLUXITE—the paste flux—with which even dirty metals are soldered and "tinned." It does not "poison" the solder nor corrode the metal—and can be used with safety even on sensitive apparatus.
With Fluxite, joints can be "wiped" successfully that are *Impossible by any other method.*

FLUXITE has been used for over 40 years in Government Works and by the leading Engineers and Manufacturers. OF ALL IRONMONGERS—in tins—10d., 1s. 6d., and 3s. 0d.

The FLUXITE GUN puts FLUXITE where you want it by a simple pressure. Price 1s. 6d. or filled 2s. 6d.

ALL MECHANICS *WILL* HAVE

FLUXITE

IT SIMPLIFIES *ALL* SOLDERING

Write for Leaflets on CASE HARDENING STEEL and TEMPERING TOOLS with FLUXITE also on "WIPED JOINTS." Price 1d. each.

Fluxite Ltd. (Dept. G.J.), Bermondsey Street, S.E.1

THE DEVONARC WELDING WORKS, The Old Tannery, Alphington, Exeter,

FOR GUARANTEED WELDING.
Recently we completed 2 miles of 8" and 15" H.P. Steel Gas Main Joints Without a Leak on Test.
Syphons, Bends, Flanged Specials, etc. Fabricated on site. A record of which we are proud.
WE GUARANTEE OUR WORK TIGHT BEFORE TEST!
PRESSURE WORK OUR SPECIALITY.
ARE YOU HELD UP FOR FLANGED PIPES, SPECIALS, ETC? WHY NOT TRY US? OUR MOTTO 'QUALITY FIRST.'

BOG ORES
IRISH
BELGIAN and DUTCH
HARRISONS (LONDON) LTD.
66, MARK LANE, LONDON, E.C. 3
Telegrams: "BIRCHROCK, LONDON." Telephone ROYal 3120.

THE BRITISH GAS PURIFYING MATERIALS CO., LTD.
NATURAL BRITISH.
DUTCH BOG ORE.
SPENT OXIDE.
LONDON ROAD, LEICESTER.
Telegrams: "BRIPURIMAT"
Telephone: 59086

MISCELLANEOUS

VITREOUS ENAMELLING. Capacity available. High class work. FOICIK & SON, 36, Western Road, Plaistow, E.13. Grs. 4524.

SMALL single truckloads and larger quantities of good ROUGH BREEZE from any Gas-Works, large or small, in the United Kingdom required by merchants paying own Railway Tolls. Cash price and particulars to No. 9378, "GAS JOURNAL," 11, Bolt Court Fleet Street, E.C.4.

"KLEENOFF"

THE COOKER CLEANER

Tins for Sale to Consumers. In Bulk for Works Use.

OXIDE OF IRON.

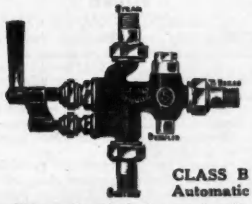
BALE & CHURCH, LTD.

33, ST. MARY AT HILL, LONDON, E.C.3.

Telephone: Mansion House 1156. Telegrams: "Balefire, London."

BUFFALO INJECTOR

(British Made)



CLASS B Automatic

Operated entirely by one handle

GREEN & BOULDING, LTD.

162a, DALSTON LANE, LONDON, E.8

PATENTS

KINGS PATENT AGENCY, LTD.

(Director, B. T. King, A.I.M.E., Patent Agent)

Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. Phone: City 6161.

MEWBURN, ELLIS & CO.,

CHARTERED PATENT AGENTS

AND TRADE MARK AGENTS

70 & 72, Chancery Lane, London, W.C.2.

Telegrams: "Patent, London." Phone: Holborn 0437

And 3, St. Nicholas Buildings, Newcastle-on-Tyne.

AGENCY

LONDON Firm acting as Sole Distributors of specialities in constant demand for MAINS AND SERVICES and having valuable connexion with distribution engineers throughout the United Kingdom, seeks AGENCY or working arrangement with a Manufacturer desirous of supplying or increasing sales to the Gas Industry. Apply to No. 9696, "GAS JOURNAL," 11, Bolt Court, Fleet Street, E.C.4.

REPAIRS

REPAIRS to CLOCKWORK CONTROLLERS for street lighting, Clocks, Time Switches and every kind of clockwork mechanism. J. W. & R. E. Hughes (Clockwork Engineers), 58, Victoria Street, London, S.W.1. Phone: Victoria 0134.

PAYNE & FLOOD, LTD., 182, Oldham Road, Manchester, 4, Phone Col. 1393, are in a position to undertake all types CARBONIZING PLANT REPAIRS, Retort House Reconstruction, Producer Relinings, Hot and Cold Patching, Structural Steelwork Erected and Dismantled. Expert advice available.

EDUCATIONAL

UNIVERSITY OF LEEDS

DEPARTMENT OF COAL GAS AND FUEL INDUSTRIES (WITH METALLURGY).

SPECIAL Courses of afternoon lectures will be given during January, February and March, 1948, as follows:

THE MANUFACTURE OF COAL GAS:

CARBONIZATION WITHIN THE GAS INDUSTRY—S. Pexton, D.Sc., Ph.D., M.Inst.Gas E.; F. R. Weston, Ph.D., F.R.I.C., D.I.C.

WATER GAS—F. J. Dent, D.Sc., Ph.D.

GAS PURIFICATION—G. U. Hopton, B.A., B.Sc., A.M.I.Chem.E.

TOWN'S GAS—ORGANIC SULPHUR COMPOUNDS AND COMBUSTION CHARACTERISTICS—J. W. Wood, M.Sc.Tech., A.R.I.C., M.Inst. Gas E.

REFRACTORY MATERIALS:

J. H. Chesters, D.Sc.Tech.

METALLURGY:

MODERN TECHNIQUES IN ANALYTICAL AND NON-DESTRUCTIVE TESTING—E. J. Vaughan, M.Sc.

For further particulars apply to the REGISTRAR, The University, Leeds, 2.

PLANT FOR SALE & WANTED

WANTED. Steam-driven EXHAUSTER. Capacity 25,000 to 30,000 cu.ft. per hour. Age and full details to be forwarded to the ENGINEER AND MANAGER, Conway Gas Co., Ltd., Castle Street, Conway.

FOR SALE. IMPELLER, GEAR WHEEL, TURBINE WHEELS, SHAFTS AND BEARINGS (new) for 10 h.p. Greenwood-Batley-Sturtevant fan set of H.G. C.W.G. plant. Particulars ENGINEER, Gasworks, Dudley.

PHONE 98 STAINES.

FOR SALE. STEEL OPEN TOP TANK, 30 ft. by 9 ft. by 5 ft. 34 kW STEAM GENERATING SET, 220 volts D.C. LANCASHIRE BOILER, 14 ft. by 6 ft., 80 lb. w.p. STEEL CONDENSER, 16 ft. long by 2 ft. diameter 20 H.P. BROTHERHOOD DIESEL LOCOMOTIVE 24 in. gauge. Bailey AIR COMPRESSOR, 100 cu.ft., 100 w.p. 5 h.p., 7 h.p., and 25 h.p. Crossley GAS ENGINES.

HARRY H. GARDAM & Co., LTD., Staines.

CITY AND ROYAL BURGH OF DUNFERMLINE

SALE OF PLANT.

THE Town Council are prepared to receive offers for the purchase, dismantling and removal of one set of ANNULAR CONDENSERS (1902) of nominal rated capacity 740,000 cu.ft. per day. The plant may be examined at the Gas-works, Grange Road, Dunfermline. Particulars and conditions of sale may be obtained from the Engineer and Manager, at the above address. Tenders, in a plain sealed envelope marked "Condensers," to be in the hands of the subscriber by February 7, 1948. The Town Council do not bind themselves to accept the lowest or any offer.

J. DOUGLAS,
Town Clerk.

City Chambers,
Dunfermline.
December 27, 1947.

CONTRACTS OPEN

TREDEGAR URBAN DISTRICT COUNCIL

GAS MAIN.

THE above Council invite tenders for the supply and delivery of 860 yards of 3 in. and 800 yards 4 in. SPUN GAS PIPES WITH SPECIALS.

Full particulars of the Council's requirements can be obtained from the Council's Gas Engineer and Manager (Mr. S. L. Filer), Gas Department, Poplar Road, Tredegar, Mon.

Tenders should state the period required for delivery.

The Council do not bind themselves to accept the lowest or any tender.

Tenders, in sealed envelopes (which shall not bear any name or mark indicating the sender) and endorsed "Gas Main," must reach the undersigned not later than 12 noon on Saturday, January 17, 1948.

OLIVER LLEWELLYN,
Clerk of the Council.

Bedwellty House,
Tredegar, Mon.
December 30, 1947.

COUNTY BOROUGH OF SOUTHPORT

(GAS DEPARTMENT.)

CARBURETTED WATER GAS PLANT.

TENDERS are invited for the supply, delivery and erection of the following plant:—

A fully automatically operated, self clinkering, self charging CARBURETTED WATER GAS AND PRODUCER GAS PLANT, together with all ancillary coke handling facilities.

Full particulars and specification together with form of tender may be had on application to the General Manager, Southport Corporation Gas Department, 91, Eastbank Street, Southport.

Tenders to be forwarded to the undersigned in plain, sealed envelopes, and endorsed "C.W.G. Plant," so as to reach this office not later than the first post on Saturday, January 31, 1948.

R. EDGAR PERRINS,
Town Clerk.

Town Hall,
Southport.

CITY OF HEREFORD

SITE PREPARATION, GAS-WORKS EXTENSION

TENDERS are invited for the supply and delivery of MATERIALS, EXCAVATION AND CONSTRUCTION of Concrete Roads, the laying of a 24 in. diameter Concrete Sewer, Surface Drains, Concrete Floor, Railway Siding and Fencing, situate on the new extension, Gas-works, Mortimer Road, Hereford.

Further particulars and copies of the specification and general conditions of contract may be obtained on application to A. Facer, F.C.I.S., M.Inst.Gas E., A.M.I.Struct.E., M.Inst.F., Engineer and General Manager, Gas-works, Mortimer Road, Hereford, accompanied by a deposit of £2 2s., which will be refunded on receipt of a *bona fide* tender.

Tenders, enclosed in plain sealed envelopes, endorsed "Site Preparation—Gas-works Extension," should be forwarded to the undersigned to be received not later than noon on Saturday, January 31, 1948.

The Corporation does not bind itself to accept the lowest or any tender.

T. B. FELTHAM,
Town Clerk

Town Hall,
Hereford.

CITY OF HEREFORD

PAINTING OF GASHOLDERS.

TENDERS are invited for the PAINTING of three Gasholders situate at Mortimer Road, Hereford.

Further particulars and copies of the specification and general conditions of contract may be obtained on application to A. Facer, F.C.I.S., M.Inst.Gas E., A.M.I.Struct.E., M.Inst.F., Engineer and General Manager, Gas-works, Mortimer Road, Hereford.

Tenders, enclosed in plain sealed envelopes, endorsed "Painting of Gasholders," should be forwarded to the undersigned to be received not later than noon on Saturday, January 31, 1948.

The Corporation does not bind itself to accept the lowest or any tender.

T. B. FELTHAM,
Town Clerk.

Town Hall,
Hereford.

COUNTY BOROUGH OF STOCKPORT

(GAS DEPARTMENT.)

TENDERS are invited for the annual require- ments of the following materials:

(1) BRASS FITTINGS.
(2) C.I. PIPES AND IRREGULARS.
(3) CEMENT.
(4) GRANITE CHIPPINGS.
(5) HAMMER SHAFTS, &c.
(6) METER SKINS.
(7) PIPE HOOKS AND CLIPS.
(8) SHEET GLASS.
(9) SHOVELS.
(10) SOLDER.
(11) STEEL FILES
(12) WASHED SAND.
(13) FITTERS' TOOLS.

Full particulars and specifications may be obtained on application to H. Russell, Secretary, Gas Department, Town Hall Annexe, Stockport.

Tenders to be enclosed in plain sealed, endorsed envelopes, addressed to the Chairman of the Gas Committee, Town Hall, Stockport, and to be received not later than February 7, 1948.

The Corporation does not bind itself to accept the lowest or any tender.

ARTHUR BOND,
Town Clerk.

Town Hall,
Stockport.
January 3, 1948.

APPOINTMENTS VACANT

None of the vacancies in these columns relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he or she is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

WANTED. Capable man to act as CLERK OF WORKS supervising Contractors engaged in the laying of high and low pressure gas mains. Must have extensive practical experience and be capable of preparing all necessary records, &c. Temporary appointment for approximately four months durati.on Applications, stating salary required and accompanied by *copies* of recent Testimonials, to be submitted to the ENGINEER AND MANAGER, Gas-works, Lower Gornal, near Dudley.
January 3, 1948.

LUTON GAS COMPANY

WORKS TECHNICAL STAFF—CHEMIST.

APPLICATIONS are invited for the position on the technical staff as WORKS CHEMIST. The successful applicant will be required to perform laboratory work and to take part in the control of the normal gas-works processes for the production of gas and its by-products.

Salary will be in accordance with qualifications and experience.

Applications, giving particulars of age, training and experience, should be sent to the undersigned.

W. G. PHILLIPS,
Engineer and General Manager.

Luton Gas Company,
Dunstable Road, Luton.

SUNDERLAND GAS COMPANY

APPLICATIONS are invited for the positions of (*a*) TECHNICAL ASSISTANT experienced in the chemical control of normal works processes including C.W.G. plants and benzole extraction.

(*b*) TECHNICAL ASSISTANT (Engineering) experienced in drawing office work and capable of supervising works reconstruction schemes.

The persons selected will be eligible for the Company's superannuation scheme subject to medical examination.

The commencing salaries will be not less than £450 per annum, according to qualifications.

Applications should be sent to the undersigned not later than Wednesday, January 21, 1948, stating age, technical qualifications and experience, together with *copies* of two recent Testimonials.

C. C. WALMSLEY,
Managing Director.

Chief Offices,
Fawcett Street, Sunderland.

(*Classified advertisements continued on Supplement* 6)

APPOINTMENTS VACANT (ctd.)

ADVERTISER seeks position as WORKS MANAGER or other executive capacity, with firm in Gas Industry, where his inventive ability would serve a useful purpose. Long experience, keen enthusiastic. Highest credentials. Replies to No. 9695, "GAS JOURNAL," 11, Bolt Court, Fleet Street, E.C.4.

THE WORCESTER NEW GAS LIGHT COMPANY

ASSISTANT CHEMIST.

APPLICATIONS are invited for the position of ASSISTANT CHEMIST. Candidates should have had experience in the control of vertical retorts, C.W.G. and purification plants, &c.

Commencing salary not less than £350 per annum according to experience.

Apply, stating age, experience, &c., to the undersigned.

GEO. P. MITCHELL, M.I.C.E.,
Managing Director.

PEMBROKE DISTRICT GAS COMPANY

A DISTRIBUTION SUPERINTENDENT capable of dealing with all branches of gas distribution is required by the above Company.

Salary £273 per annum, plus cost of living bonus at present £59 16s. per annum, plus free house, coal and gas.

Candidates should possess not less than the Institution of Gas Engineers Ordinary Grade Certificate in Gas Supply.

The successful candidate will be required to pass a medical examination.

Applications, endorsed "Distribution Superintendent," stating age, experience, together with *copies* of two recent Testimonials, should reach the undersigned not later than Saturday, January 17, 1948.

DARRELL W. REES, M.B.E.,
Gas Offices, Engineer and Manager.
Pembroke Dock.

COUNTY BOROUGH OF BLACKBURN

(GAS DEPARTMENT.)

APPLICATIONS are invited for four posts of SHIFT SUPERINTENDENT. Salary £390-£435 (Grade III of the National Scales of Salaries), plus bonus £59 16s. per annum.

Candidates should have a thorough technical knowledge and practical experience of the operation of continuous vertical retort installations and ancillaries and be capable of taking control of the works processes. The works has a daily producing capacity of 7,000,000 cu.ft.

Applications, endorsed "Shift Superintendent," giving full details of experience, qualifications and the present position held and *copies* of two recent Testimonials, to be delivered to the Engineer and Manager, Gas Department, Town Hall, Blackburn, by Monday, January 12, 1948.

CHAS. S. ROBINSON,
Town Clerk.

ACCRINGTON DISTRICT GAS AND WATER BOARD

CHEMIST.

APPLICATIONS are invited for the above position at the Board's Great Harwood Gas-works at a salary in accordance with Grade II of the National Scales, £360 x £15—£405 per annum, plus bonus (at present £59 16s. per annum), commencing step in grade according to qualifications and experience.

Candidates should have a sound practical experience in the control and operation of modern gas-works plant, and should be capable of carrying out all laboratory work attendant upon the efficient working of such plant.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, stating age, present position, qualifications, full details of training and experience, together with *copies* of two recent Testimonials and endorsed "Chemist," should be forwarded to the undersigned not later than Wednesday, January 14, 1948.

A. HARRISON,
General Offices, General Manager.
St. James' Street, Accrington.
December 20, 1947.

WEST RIDING GROUP OF GAS COMPANIES

APPLICATIONS are invited for the position of LOCAL SUPERINTENDENT at Garforth, to be responsible under the Area Manager for service, sales and distribution of gas in the townships of Garforth, Aberford and Barwick. Minimum qualifications should comprise the Ordinary Grade Certificate in Gas Engineering (Supply), supported by extensive practical experience, firstly in gas fitting and appliance installation and maintenance, and latterly as a Distribution Superintendent or Assistant.

Salary £375 per annum, subject to periodical review. A house will be provided rent and rates free when vacated by the present Superintendent following upon his promotion. A lodging allowance of 30s. per week will be paid meanwhile.

All gas is purchased in bulk at each station. The vacancy thus offers an opportunity for a man qualified in distribution to acquire management experience.

Applicants should give full details of practical experience, qualifications and positions held. Present salary should be stated. *Copies* of three recent Testimonials should be enclosed. Applications to be submitted before January 26, 1948, to H. B. TAYLOR, General Manager, West Riding Group of Gas Companies, Warrengate, Wakefield.

URBAN DISTRICT COUNCIL OF GAINSBOROUGH

(GAS DEPARTMENT.)

DISTRIBUTION FOREMAN.

APPLICATIONS are invited for the above position from persons experienced in all branches of gas distribution.

The appointment is subject to the Conditions of Service and Salary Scales of the National Joint Council the salary being in accordance with Grade II of the Miscellaneous Division, commencing at £374 16s. and rising to £419 16s. per annum, including cost of living bonus.

The appointment will be determinable by one month's notice on either side, is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Should the successful candidate require housing accommodation, the Council will use their best endeavours to provide a suitable house at a reasonable rent.

Applications (on forms to be obtained from the undersigned), together with the names and addresses of two persons to whom reference can be made, must be received by the undersigned not later than first post on Monday, January 12, 1948.

Canvassing, directly or indirectly, will disqualify, and candidates should disclose whether to their knowledge they are related to a member or a senior official of the Council.

ERIC R. MORGAN,
Council Offices, Clerk of the Council.
Lord Street,
Gainsborough,
Lincs.
December 24, 1947.

CHESTERFIELD CORPORATION

(GAS DEPARTMENT.)

TECHNICAL ASSISTANT.

Exempt from Control of Engagements Order, 1947.

APPLICATIONS are invited for the position of JUNIOR TECHNICAL ASSISTANT at a salary, according to age and qualifications, within the A.P.T. Division, Grade I, of the National Scale of Salaries (£330-£375, plus cost of living bonus, at present £59 16s. per annum). Applicants must hold the Institution of Gas Engineers Ordinary Grade Certificate in Gas Engineering.

The appointment is subject to the Local Government Superannuation Act, 1937. Applicants must disclose whether they are related to any member of the Council or to any senior officials.

Canvassing will disqualify.

Applications, stating age, whether single or married, qualifications and experience, together with *copies* of recent Testimonials, must reach the undersigned, endorsed "Technical Assistant—Gas Department," not later than January 24, 1948.

RICHARD CLEGG,
Town Hall, Town Clerk.
Chesterfield.

BRISTOL GAS COMPANY

CHIEF FOREMAN, MAINS DEPARTMENT.

APPLICATIONS are invited for the above position. Applicants should have a thorough practical and theoretical knowledge of high and low pressure main and service laying. Ability to organize and control labour is essential.

A flat will be available early this year at reasonable rental if desired.

Wage, including war bonus, £7 8s. per week.

Applications, stating age, training, experience and qualifications, together with *copies* of two recent Testimonials, should be sent to the undersigned not later than January 24, 1948.

This advertisement is inserted by permission of the Ministry of Labour and National Service under the Control of Engagement Order, 1946.

JAMES CARR,
Radiant House, Engineer and General Manager.
Bristol, 1.

ACCRINGTON DISTRICT GAS AND WATER BOARD

ENGINEERING DRAUGHTSMAN.

APPLICATIONS are invited for the above position at a salary in accordance with Grade III of the National Scales, £390 x £15—£435 per annum, plus bonus (at present £59 16s. per annum).

Applicants should have experience in the design and layout of buildings and plant and be capable of preparing plans and specifications. Previous experience in a gas undertaking or with a gas plant contractor will be considered an advantage.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, stating age, present position, qualifications, full details of training and experience, together with *copies* of two recent Testimonials, and endorsed "Engineering Draughtsman," should be forwarded to the undersigned not later than Wednesday, January 14, 1948.

The advertisement is published by permission of the Ministry of Labour and National Service under the Control of Engagement Order, 1947.

A. HARRISON,
General Offices, General Manager.
St. James' Street, Accrington.
December 20, 1947.

BOOKS IN STOCK

THEORY OF INDUSTRIAL GAS HEATING
PETER LLOYD. 7/6 post free

CARBONIZATION IN HORIZONTAL RETORTS
G. M. GILL. 3/- post free

RETORT HOUSE TECHNICAL CONTROL
A. R. MYHILL. 12/6 post free (Quotations for 12 copies and over)

NOTES ON HIGH PRESSURE GAS MAIN CONSTRUCTION
R. J. RESTALL. 10/6 post free

DOMESTIC UTILIZATION OF GAS
Parts 1 & 2 (Combined Edition)
SMITH & LE FEVRE. 15/6 post free

MANUAL OF GAS FITTING
LE FEVRE. 30/- post free

GOVERNORS AND GOVERNING
A STUDY OF PRESSURE CONTROL FOR THE GAS ENGINEER AND STUDENT
B. R. PARKINSON, M.I.Mech. E., Hon.M.Inst.Gas E.
22/6 post free

GAS SERVICE POCKET BOOK
NORMAN S. SMITH. 3,6 post free

GAS JOURNAL CALENDAR & DIRECTORY
25/- post free

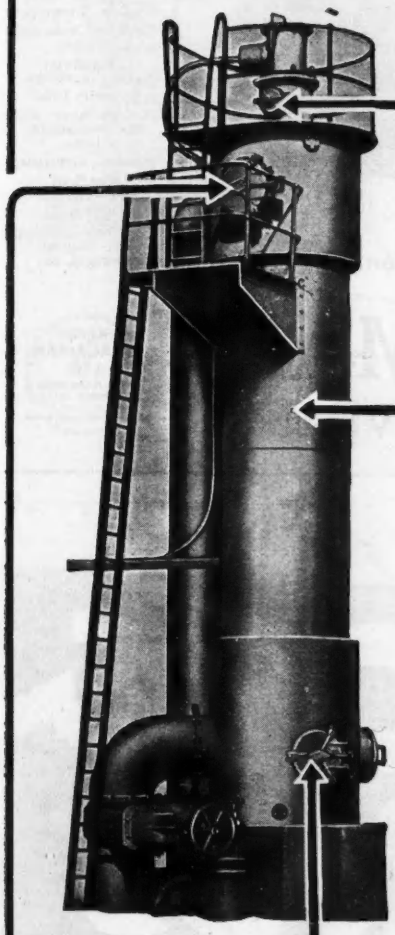
GAS JOURNAL OFFICES
11, Bolt Court, Fleet Street, London, E.C.4

STANTON Spun Iron PIPES

HOLMES ELEX

DETARRERS

SPECIAL FEATURES



Quick opening manholes for ease of inspection (Figs. 1 and 6) fitted with Castell interlocking system (Figs. 3 and 5) ensuring that the manholes cannot be opened until the electrical supply is cut off.

FIG. 1

The patented concentric ring electrodes (Fig. 2) form the ideal construction for electrical detarrers. An exclusive feature in Holmes-Elex design.

FIG. 2

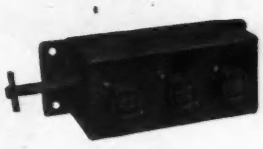


FIG. 3

Completely "Self-Screened" electrical equipment with combined control panel (Fig. 4) ensures absolute protection and prevents interference with radio reception.

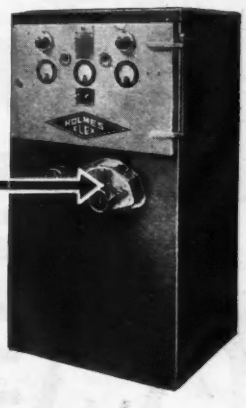


FIG. 4

FIG. 5

FIG. 6

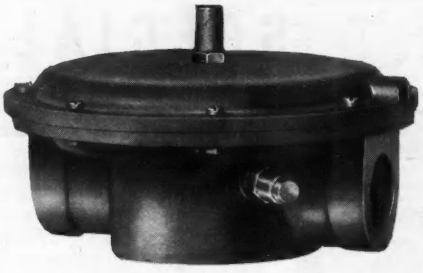
W. C. HOLMES & CO. LTD. HUDDERSFIELD LONDON BIRMINGHAM

C 272

Safety Shut-off Valve

with push-button control.

This valve is for use on low pressure gas supply pipes. It shuts off the gas when the pressure drops to a pre-determined point (usually 1-in. W.G.), and it remains shut and cannot be re-opened until **all** burner cocks are shut off and the inlet pressure restored. It is re-opened by manual operation of the push-button.



OTHER "Keith-Blackman" specialities for the Gas Industry include :

Air and Gas Compressors
Air and Gas Mixture Controllers
High and Low Pressure Gas Injectors, Burners and Nozzles
Brazing Blowpipes
Soldering Irons and Stoves
Thermostat Gas Controllers
Laundry Irons
Back-pressure and Meter-protection Valves
Pressure Governors
Gas fired Unit Heaters
Blowers
Fans for Ventilating, Mechanical Draught, etc.

Made in several sizes.

Full particulars and prices on application.

"KEITH-BLACKMAN"

SAFETY SHUT-OFF VALVE.

KEITH BLACKMAN LTD. MILL MEAD ROAD, LONDON, N.17

WRITE FOR CATALOGUE 111.

WALKER'S LION PACKING

PACKINGS & JOINTINGS

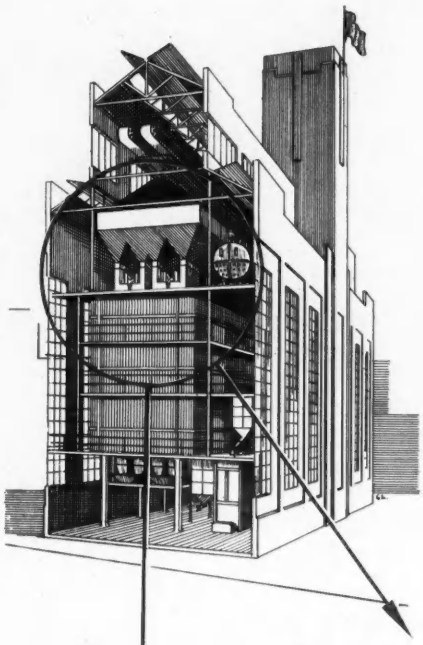
• WE SOLVE MODERN PACKING & JOINTING PROBLEMS — IT IS OUR SOLE BUSINESS •

JAMES WALKER & Co. LTD.

"LION" WORKS, WOKING, SURREY, ENGLAND

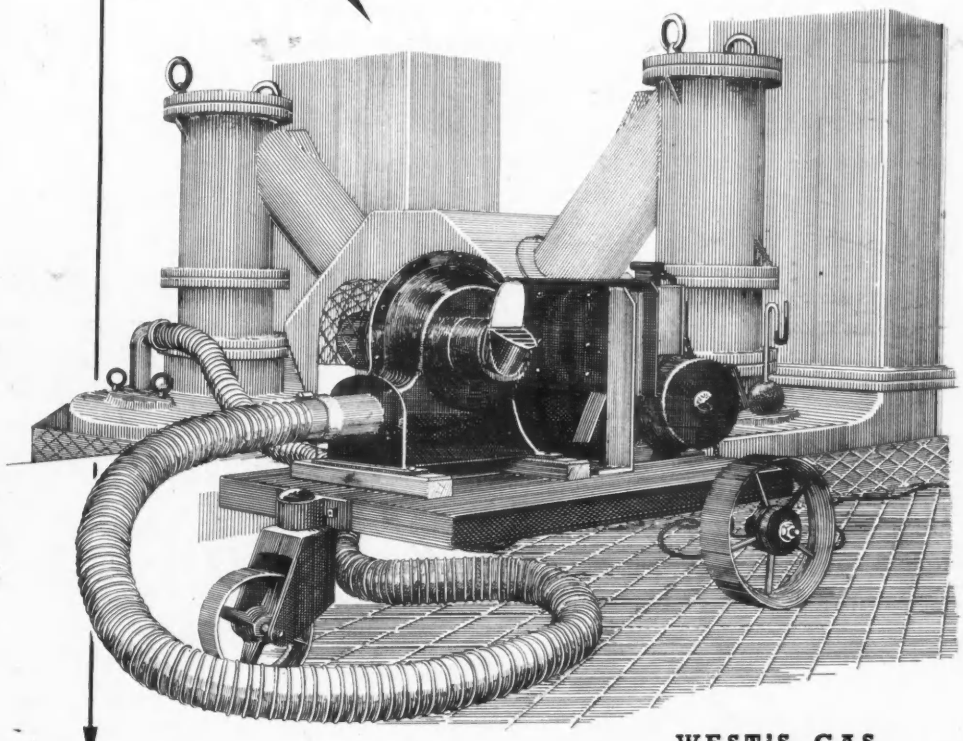
Phone: WOKING 2432 Grams: "LIONCELLE."

Printed by Straker Brothers Ltd., E.C.2, for WALTER KING LIMITED, 11, BOLT COURT, FLEET STREET, LONDON, E.C.4.—Wednesday, January 7, 1948.



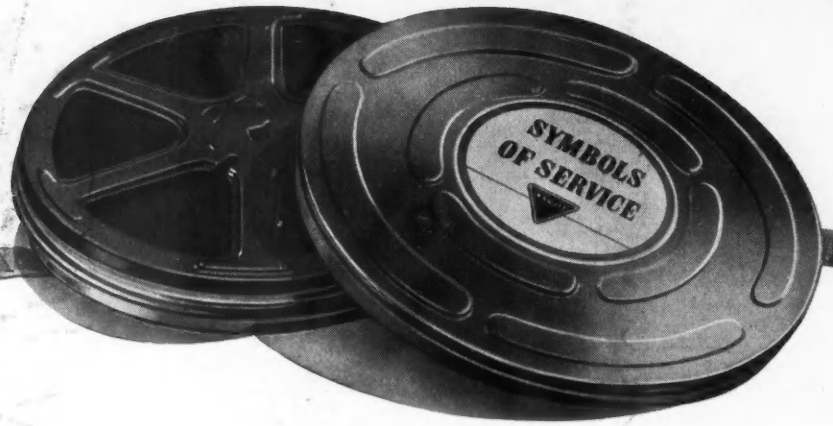
MODERN DEVELOPMENTS IN THE GLOVER-WEST SYSTEM OF CONTINUOUS CARBONIZATION IN VERTICAL RETORTS

PROGRESS



AIRBORNE SEALING

WEST'S GAS IMPROVEMENT CO., LTD.
Miles Platting, MANCHESTER 10
Telephone: COLlyhurst, 2961-2-3-4-5
Telegrams: Stoker, Manchester
London Office: Columbia House, Aldwych, W.C. 2
Telephone: HOLborn 4108-9
Telegrams: Wesgasco, Estrand



ASCOT

HAVE MADE A NEW FILM

The film " Symbols of Service " is a further contribution to a long list of Sales and Technical Services which Ascot have been privileged to offer their friends in the Gas Industry over the past fifteen years.

Its purpose is to supplement the very wide Instructional Courses on the Principles of Water Heating by Gas held in the Lecture Room at the Neasden Factory and throughout the Provinces. It is a 16 mm., thirty minute sound film with music and speech, illustrating the need for adequate supplies of hot water from Roman times to the present day, and presents in an interesting manner a short refresher course on installation and maintenance.

Copies of " Symbols of Service " are freely available to Gas Undertakings and a cordial invitation to apply for a copy on loan from any of the Ascot Branch Offices or the Film Library of the British Gas Council is extended to all who are interested in the training of staff on the important subject of **INSTANT HOT WATER BY GAS.**

ASCOT

ASCOT GAS WATER HEATERS LIMITED
43 PARK STREET · LONDON · W1 · GROsvenor 4491